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Innovations in teacher education in developing countries : a case study.

Margaret Lynn Maxwell
University of Massachusetts Amherst

INNOVATIONS IN TEACHER EDUCATION IN DEVELOPING COUNTRIES: A CASE STUDY

A Dissertation Presented

By

MARGARET LYNN MAXWELL

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Approved as to style and content by:

Robert J. Miltz, Chairman of Committee

Horace Reed, Member

Laurence F. Locke, Member

Mario D. Fantini, Dean
School of Education

DEDICATION

To my family: Elizabeth, Edward, Sandra, Gayle and Stephen

for teaching me that no man is an island.

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To identify and credit all those individuals who intentionally or unintentionally contributed to the completion of this study is as monumental a task as the study's recommendations themselves. Nonetheless, an attempt to do so must be undertaken.

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Finally, and most humbly, I offer eternal thanks and love to my friends: to the CIE "supporters"--Anna, Cookie, Debbie, JoElyn and Kathy; to my professional and personal sisters--Barbara, Jan, Jeanne, Nancy and Pat; and to my beloved family--Elizabeth, Edward, Sandra, Gayle and Stephen. May the words of this document justly reflect the meditation of all our hearts.

ABSTRACT

Innovations in Teacher Education in

Developing Countries: A Case Study

Margaret Lynn Maxwell, B.A., Wilson College

M.A., State University of New York at Albany

Ed.D., University of Massachusetts

Directed by: Professor Robert Miltz

Current research findings indicate 1) that the impact of innovations on educational settings is minimal, if any, and 2) that few innovations are being institutionalized. This study examined issues surrounding the institutionalization of innovations, particularly within teacher education programs in developing countries. The study first examined literature on the types of innovations within teacher training institutions in developing countries and on representative innovation research models and theories. Subsequently, based on this literature, a Wholistic Innovation Model was proposed in which four aspects of innovation were identified as "sensitizing concepts." These aspects were 1) innovation characteristics, 2) adopter characteristics, 3) innovation process strategies, and 4) social system constraints and resources.

As sensitizing concepts, these four aspects guided the researcher in developing a case-study research design which both quantitatively and qualitatively evaluated the innovation of self-instructional materials (SIMs) at the National Teacher Training College (N.T.T.C.) of Lesotho. Personnel involved currently and historically with SIMs as

well as documents were used as sources in evaluating 1) the institutionalization level of the innovation, and 2) the factors influencing that level.

The data analysis revealed that SIMs were not institutionalized at N.T.T.C. Factors influencing this status were categorized according to the four sensitizing concepts or innovation aspects in which the most frequently cited factors inhibiting institutionalization were found included 1) the innovation process strategies, and 2) the social system constraints and resources. The aspect that contained factors most frequently cited as supporting SIMs was the innovation characteristic. The aspect of adopter characteristics included an equal number of factors inhibiting and supporting the innovation.

A summary of findings and implications from the case-study analysis suggest that participatory decision-making, collaborative control and continuous sensitivity to the needs and perceptions of adopters are important for innovation survival. Evaluating innovations from a systemic or wholistic approach appears to be a powerful and particularly appropriate method for analysis in the area of education.

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CHAPTER I

INTRODUCTION

Background

The post-independence decades of 1960-70 give evidence of immense efforts to reform the educational systems of developing countries. In the 1960's and early 1970's, planners within these countries firmly believed that education was an appropriate catalyst by which the development goals of self-reliance, equality and nationalism could be achieved (Klassen, 1970; Nyerere, 1967; UNESCO, 1970). At the same time, these planners recognized that the colonially introduced education structures remaining after independence were not equipped with the personnel nor programs which could implement these goals (Bolibaugh, 1972; Coombs and Hallack, 1972; NEIDA, 1978, p. 42; UNESCO, 1973). Massive reforms were proposed to change these structures into ones which could (Coombs, 1968; Ministry of Education/Ghana, 1977; UNESCO, 1979).

One particular educational structure which faced the greatest reform was that of teacher training. As observed by Klassen and Collier of the International Council on Education for Teaching, "in a real sense, as teacher education goes, so goes the nation" (1972, p. 26). This causal relationship between teachers and national development was given greater credence by John Hanson in his description of the role of teachers in Africa:

> It is the organization and quality of learning within them [schools] which is probably the key to their modernizing influence, and in the nations of Africa the quality of learn-

> ing is undoubtably even more a product of the capacity of the teaching force than it is in wealthier countries where enrichment is possible through modern teaching aids, workshops and libraries, and buildings which encourage teaching methods flexibility (1970, p. 17).

Thus, believing that teachers contributed to education which, in turn, contributed to development, planners examined the capabilities of their current teacher training institutions to prepare teachers for post-independence development. Capabilities were found to be sorely deficient, particularly in response to three development goals: 1) the nationalizing of personnel, 2) the universalizing of primary education, and 3) the development of curricula which met priority development needs (Klassen and Collier, 1972; Educational Study Group, 1971; ICET, 1969). . A brief description of the deficiencies in these areas follows.

First, upon independence, many developing countries realized that they had to nationalize their teaching staffs, particularly at the secondary level. Prior to independence, secondary teachers were commonly expatriates from the colonizing nations. Their exodus after independence resulted in a devastating shortage of personnel. For example, by 1962, three-fourths of Mali's secondary teachers were gone (Klassen, 1970, p. 54); by 1965, 93.5% of Ivory Coast's secondary teachers were leaving (Coombs, 1968, p. 195). Such depletions occurred at the primary level also (Bacchus, in Dodd, 1971, p. 6). An added dilemma was that most secondary teacher training had been conducted by colonialists either within the developing country itself or within the home country, e.g. sending French West Africans to France for secondary certification. The emigration of colonial personnel resulted not only in a lack

of secondary level teachers but also in a dearth of teacher trainers at all levels (Coombs, 1968; p. 43). Consequently, training institutions were found to be ill-equipped for nationalizing not only the classroom teachers but their training personnel.

The lack of primary level teachers became particularly evident in the attempt by developing countries to meet a second development goal: the universalization of primary education. Primary schools opened their doors during the 1960's and early 1970's to an enormous influx of new students. World-wide, from 1965 to 1980, enrollment in primary schools increased from approximately 165 million to 294 million (UNESCO, 1982, p. II-11); in the Ivory Coast, as a specific example, the number of children enrolled increased 1,000 times from 1950 to 1970 (Klassen, 1970, p. 9). This growth, due also in part to a population increase, exhorted a comparable increase in the number of teachers trained. Again, the teacher training institutions of the 1960's were found to be unprepared.

Thirdly, colonial powers had left teacher training curricula which were perceived to be severely inadequate in meeting the unique development needs of newly independent countries. Criticism of the content <u>by</u> which primary, secondary and tertiary students were taught was equal to that criticism of the content <u>in</u> which their teachers had been trained. The comment which follows summarizes such criticism:

> Colonial literature abounds in assertions that colonial peoples prior to independence had not reached "the stage of development" that metropolitan peoples had achieved, that the business of education consisted in assisting

> colonial peoples to get "absorbed" or "assimilated" into the culture and civilization that only Europe knew. . . . It expected conformity (NEIDA, 1978, p. 42).

This emphasis on "assimilation" into a European life-style was condemned by the educational planners of the 1960's and 1970's, and training institutions which featured it in their curricula were considered inadequate in preparing future teachers.

There was an additional impact which this condemnation had on training outside of the formal educational institutions for which these institutions were equally unprepared. This was on the re-training of teachers already in the field who had been certified within the former colonial structures and on the initial training of uncertified teachers also in the field. The statistics on these two groups were overwhelming: in Kenya, as of 1966, 20.5% of all teachers were untrained; in Uganda, only 25% of the primary teachers had completed 6 years of primary school and 2 years of professional training (Klassen and Collier, 1972, p. 25). Similar cases may be cited for Latin America or Asia where, for example, in the Nepal of the 1960's, ". . . a person needs only a few more years of schooling than the student he is teaching . . . one who has completed only the five years of primary school may teach the first few grades" (Reed, 1968, p. 146). The retraining of these individuals, in addition to pre-service teachers, was a Sisyphian task for the unprepared training institutes of newly independent countries.

Recognizing the necessity to retool these institutes in order that they meet development needs, educational planners proposed numerous in-

novations which would reform teacher education institutions. Basically, these innovations aimed at 1) increasing the number of teachers while, 2) increasing the quality of teaching, 3) through nationalized personnel and curricula, and 4) the collaboration of all educational institutions (Dodd, 1971, pp. 2-3). Although detailed in Chapter II, samples of specific innovations are cited here according to four aspects of teacher training: format, curriculum, methods and materials.

Format innovations included the development of new pre-service and in-service programs. Trainees began to receive credit for teaching experiences completed prior to their entry into pre-service programs. Certification requirements, then, were dependent upon entry level skills, and varied formats developed accordingly. In Africa, particularly, this innovative format was popular (Fafunwa in Klassen, 1970, p. 21). Most pre-service courses, however, were lengthened, and the traditional "normal school" became the school of education or institute of education. In-service and correspondence or distance teaching were instituted to reach more teachers and to keep costs down (APEID, 1979, p. ii; NEIDA, 1979, p. 32). The concept of "workshops" and "seminars" emerged for the upgrading of skills at short-term sessions during vacations or release time.

Within the curriculum, training programs de-emphasized "academic subject" areas by introducing more education and development courses (UNESCO, 1970). Topics such as agriculture, health and community development were promoted. As for the methods and materials within teacher training institutions, both those <u>in</u> which and <u>by</u> which trainees

were instructed experienced innovations. More child-centered than teacher-centered methods evolved in addition to those encouraging independent and critical thinking rather than rote-learning (Dodd, 1971, p. 18; Klassen, 1970, p. 153; UNESCO, 1977, p. 8). Nationalized or local materials were proposed in place of colonial texts. With the explosion of technology and commercially developed materials in the 1970's, radios, televisions, films, programmed learning packets and self-instructional materials soon attracted educational planners (Klassen and Collier, 1972, p. 9; Klassen and Leavitt, 1977, p. 7; NEIDA, 1981, p. 25, UNESCO, 1978a).

Billions of dollars were spent between 1960 and 1980 on these innovations in an effort to reform teacher education. Some of that money came from the national education budgets of developing countries. Most, however, did not. Since many of the expenditures within local budgets were for primary and secondary level costs, little was left for teacher training--and much of that was alloted for salaries (UNESCO, 1983, IV-35). Developing countries had to turn to multi-lateral funding from donor agencies such as the World Bank, the International Monetary Fund, the United Nations through UNESCO, and UNDP, or bilateral funding from the governments of wealthier nations. An example of the amount of this aid given specifically to teacher training is cited in the 1980 World Bank Education: Sector Policy Paper: approximately 1.3 billion dollars between 1963 and 1979 (pp. 127-140).

Problem

Despite the stated need for reform, the availability of donor funding, and the abundant number of innovations, the actual impact of these innovations is being seriously questioned today, particularly in teacher training institutions. Evidence of a direct, causal relationship between innovations and an increase in development is lacking. Indeed, claims of the opposite are emerging. At a regional conference in 1978 of Ministers of Education and economic planners in Asia and Oceania, one educator commented that: "Despite heavy investments in education, . . . disparities in the provision of educational opportunity have not only persisted but in some cases may have been accentuated" (UNESCO, 1978, pp. x-xi (a)). This tragic revelation is repeated in many development documents today. The following quote from Russel G. Davis' 1980 report on educational planning in sixteen developing countries poses the current rationale for questioning the impact of innovations:

> . . . the problems of poverty and underdevelopment have not been solved. The issues of maldistribution of income and property have not faded. The failure to meet basic human needs has lasted as a central issue for the past four decades. The failure of education to end poverty and injustice in the developing countries has had more attention recently, rather than less (Volume I, p. 1).

The assumption, then, that educational reform has had a direct and positive effect on development no longer is sacrosanct.

Consequently, the reform of teacher education has been questioned as to its impact--although with less ardor than the questioning of more

general educational reforms. Nonetheless, the few evaluations undertaken do not give evidence of overwhelming success. Indeed, they indicate a lack of long-term impact.

One such evaluation--and, admittedly, the most thorough of those documented--is that by Havelock and Huberman of 40 teacher education projects funded by UNESCO in 1975. These two educators make the blunt observation that:

> In spite of such large scale investments and expectations, few of these innovations appear to make a major dent at the national level in the educational or training problem which they were designed to solve. They appear to be giant pilot projects (1977, p. 15).

Assessing similar innovations in his own country, Newman Smart, head of the department of education at the University of Sierra Leone, remarked that:

> . . . many teachers are unqualified and untrained, half a page ahead of the pupils they teach. Strategies have been invented to deal with this problem; in-service training, crash programs, vacation courses, correspondence tuition, teaching by radio, or a combination of these. These are helpful but do not meet all the needs. They seem inadequate both in quantity and quality to solve the problems brought about by universal primary education (in Klassen and Leavitt, 1977, p. 36).

At this point, a second problem within the field of innovation evaluation, and specifically, within the area of teacher training, must be stated forthrightly. Any critical assessment of such innovations cannot be based solely on a review of evaluations; for these are very limited in number and in scope. Perhaps this is due to the time lapse which obviously must occur before realistic evaluations may be completed. Perhaps it is due to a lack of funding, a lack of priority, or an

assumption that all is going well. Regardless of the rationale, it is obvious from more subtle evidence, such as the continued pleas over the past ten years for the same reforms within teacher training which supposedly were to have been met earlier by these same innovations, that the time for critical questioning is at hand.

These subtle indicators give cummulative credence to the fact that many innovations within teacher training institutions have not met with success. They describe how unqualified teachers still abound, how nationalized curricula does not yet exist throughout educational systems, how methods and materials remain teacher-centered, and how many innovations have failed to be institutionalized. Instead, innovations have been seen as temporary placebos to development needs or, worse yet, as continuing vestiges of the old colonialism in the form of neo-colonialism. A few samples of these indicators follow.

In a 1979 report by planners of the Asian Programme of Educational Innovation for Development, representatives from 10 developing countries identified some of their continuing problems as:

> 1) critical level of illiteracy; 2) shortage of qualified teachers; 3) lack of specialists and other educational personnel; 4) effective teaching approaches; 5) education of cost and need for qualified personnel in education; 6) effective procedure and technique of evaluation; and 7) upgrading the quality of teachers and other educational personnel (UNESCO, 1979, p. ii).

It is interesting to mention here that, in a 1980 World Bank sector study, it was noted that approximately 213 million dollars in teacher training loans had been given to Asia since 1963 (pp. 127-140. What effect did this investment have?

A more direct plea has been stated in the formation of the Network of Educational Innovation for Development in Africa which advocates African rather than Western approaches to innovative reform within educational institutions. Asavia Wandira of Kenya writes in one of the Network's recent publications that the involvement of international donor agencies in the innovative African Social Studies and Science Education programs for teacher training has not been totally helpful. He states:

> While undeniably acting as catalysts for change, these agencies have lacked the necessary local contact and authority sufficient to effect change. Furthermore, their financial arrangements are hardly adequate for long-term planning of innovation such as complete changes in systems would appear to demand. Above all, they are concerned with specific and limited aspects of curriculum development and could hardly be relied on to take the responsibility for overall policies affecting the curriculum of any country or the directions of its development (1978, p. 56).

These sentiments, either explicit or subtle, are just a few of the numerous others scattered among reports on innovations in teacher training institutions of developing countries which cumulatively confirm that innovations need to be questioned as to their current status and impact.

A third problem within the field of innovation research needs to be posed not only in regard to developing country contexts but to developed as well. This is the problem of who conducts research and on whom or what it is conducted. Within the last two decades, as previously stated, innovations in developing countries have been funded predominantly by bilateral or multilateral loans from donor agencies. Of-

ten, these agencies are the only ones who require evaluations. They are rarely conducted by host country nationals using indigenously appropriate research models. Instead, the majority of evaluations have been directed by foreign technical assistants, entitled consultants or experts, who often in the process of using or, actually, misusing performance based research models do little to assess the perceptions of those upon whom the innovations have impacted, such as the graduated teacher trainees working in regions distant from the capitals (UNESCO, 1979, (a)). In Havelock and Huberman's report, one African project director is quoted as saying:

> Evaluation is usually done through a report by the project director. . . . It is only fair to say that this is not an objective or systematic type of evaluation. After all, we know that a project will be judged 'successful' if the report is positive and well done, and we're personally interested in a positive evaluation. Even when outsiders are used, they usually rely on us and on one or two staff officials for most of their information (1977, p. 269).

This approach to evaluation poses a double jeopardy situation for educational planners within developing countries. How can they assess the impact of innovations when the evaluation techniques are not even within their own control? And when those techniques are used, how often are locally defined factors assessed? As Huberman and Havelock again observe:

> . . . most information for the evaluation comes from (a) the opinions of officials or experts, and (b) statistical data such as the number of students trained or materials produced--and this may have little or no relevance to the objectives of the project (1977, p. 270).

In summary, then, the problems facing innovations today within the

teacher training institutions of developing countries are three-fold: 1) a growing concern as to their success in reforming teacher education so that it may impact positively on national development, 2) a lack of information on their status and impact with which any assessment of their success can be made, and 3) a preponderance of inappropriately implemented research designs which evaluate innovations in ways that often do not meet the needs of national educational planners.

Purpose

In order to address these problems, the purpose of this study is to evaluate an innovation in a teacher training institution of a developing country by 1) determining its status or "institutionalization level," by 2) identifying the various factors influencing that level, and by 3) implementing a research design which is sensitive to the needs of indigenous educational planners and teacher educators.

To accomplish this purpose, the study examines five specific questions:

1) What are the aims and types of innovations proposed for teacher training institutions within developing countries during the years of 1960 to 1980?
2) What are the theories and models representative of innovation research during this same time period?
3) What is one model of innovation research which could be appropriate to the educational planners within developing countries?

4) For one innovation within a teacher education program of a developing country, what are its level of institutionalization and the factors influencing that level?

5) What recommendations may be given to educational planners, change agents, and teacher educators to improve the evaluation of innovations and to increase their institutionalization?

Significance

The significance of this study lies in two areas, one theoretical and the other practical. Despite the desire that these two should be collaborative components within any development project, the reality is that a distinct difference and lack of communication is evidenced between those who define the theories of development and those who implement them. This study is significant because it examines innovations within development both theoretically and practically. Simply stated, it practices what it preaches.

For educational planners, it provides a number of theoretical models by which innovations and their process of institutionalization may be examined. For development practitioners or change agents, it examines indigenously identified factors which influence that process. And for the recipients of innovations who are users or adopters, it gives an opportunity to be heard as to how they feel about an innovation.

As stated in the introduction to this chapter and in the problem section, the time is ripe for educational planners, change agents,

users and others involved in teacher education to share their thoughts about the issues of innovation.

Methodology

The methods by which this study achieves its purpose include a review of literature and a field-based research design which focused on one innovation within a teacher training college of a developing country as a case-study.

Review of literature. The review of literature discusses two particular topics: 1) the types of innovations introduced in teacher training institutions of developing countries during the 1st and 2nd Development Decades, 1960-1970 and 1970-1980 respectively, and 2) sample theories and models of innovation proposed during these same periods.

The initial review focuses on the aims and types of innovations within developing countries, in general, and within teacher training programs in particular. The second review begins with an examination of representative theories and models of innovation and concludes with the development of one model synthesizing them. What becomes readily apparent is the lack of models either developed by local planners within developing countries or developed especially for the purposes of evaluating innovations within such contexts.

Field-based research design. The field-based part of this study includes a case study of the National Teacher Training College of Lesotho

(NTTC) where the innovative teaching method known as self-instructional materials (SIMs) had been introduced in 1975. In the role of observor as participant (Denzin, 1979; Patton, 1980), this investigator taught at NTTC for three months, from February to May of 1982, while interviewing, distributing and collecting questionnaires, and reviewing local documents. A brief discussion of the rationale, data collection methods and analysis procedures of this design follows.

Rationale. After an extensive review of the literature on innovation research, this researcher developed a Wholistic Innovation Model (WIM) as a framework for identifying the status and factors influencing the institutionalization level of SIMs while being particularly sensitive to the perceptions of the national recipients of SIMs: the lecturers, administrators and local educational advisors.

The Wholistic Innovation Model incorporated what the qualitative researcher M. Q. Patton (1980) labeled as "sensitizing concepts" to assist in identifying data sources, collection methods and analyses strategies. The four sensitizing concepts particular to this model were developed from the review of literature and represent those aspects of innovation which must be considered in any innovation research. These include 1) innovation characteristics, 2) adopter characteristics, 3) the innovation process of initiation, implementation, and institutionalization, and 4) the social system characteristics.

Data collection methods. Three basic data collection methods were used in this study: interviews, questionnaires and document review.

INTERVIEWS

Fifty-seven lecturers from NTTC and 26 non-lecturers were interviewed in order to collect data on several or all of the following aspects of SIMs: their history, their current level of use and their current level of social system support. Lecturers also were interviewed as to the factors they considered influential to their current level of use.

These 57 lecturers comprised a "saturation sample" (Denzin, 1970, p. 94) since there were only 58 lecturers employed at NTTC during the time of this study. A non-lecturer group was also interviewed and included 5 NTTC administrators, 5 members of the NTTC Board of Governors (3 current and 2 past, excluding College administrators), 4 Instructional Materials Resource Center (IMRC) staff members responsible for the printing of SIMs, 1 Ministry of Education representative who had also served as the first director of NTTC in 1975, 2 of the original expatriate change agents sponsored by UNESCO, 7 of the original expatriate developers of SIMs, and 4 of the original national users of SIMs.

QUESTIONNAIRES

A commercially developed questionnaire was given to all of the lecturers and to those 9 of the non-lecturers who were currently involved with SIMs. This questionnaire was designed to assess the stage of concern each individual had toward the innovation.

A second questionnaire was developed by the researcher and given

to 300 Third Year Students at NTTC to assess their use of SIMs over the past three years.

DOCUMENT REVIEW

Over 60 historical and current documents were reviewed for data on the current social system support for SIMs; i.e., financial, training, personnel and material support. In addition, these and other historical documents provided information as to the factors influencing the current institutionalization level of SIMs. Types of documents included reports, memos, correspondence and minutes of meetings.

Analyses. The investigator defined institutionalization as 1) a high level of use, 2) a high stage of resolved concerns, and 3) a high level of social system support. Both the interview on levels of use and the questionnaire on stages of concern were commercially developed instruments for which there were established quantitative analysis procedures (see Chapter III). Social system support data were analyzed by coding pieces of data according to how each represented financial, training, personnel and material commitment to SIMs.

The analysis of factors influencing the use of SIMs followed a qualitative approach advocated by Norman Denzin (1970). Interviews and documents were coded for data pieces indicative of factors. These pieces were then "assigned" to one of the four sensitizing concept categories within the Wholistic Model. Indeed, through a "dialogue" with the data (Patton, 1980, p. 36), allowance was made for the potential emergence of an additional factor category, for the collapse of

two into one, or for the abandonment of any one in particular. This dialogical and qualitative analysis approach enabled factors and their categories to emerge from the data pieces rather than from the researcher's predetermined assumptions.

Definitions

The following definitions have been proposed for this study.

Innovation. Definitions of this term vary considerably within the literature on change, planning and reform depending, usually, upon the political or social perspective of the author. Researchers concerned with educational innovations were equally diverse in their definitions.

Nonetheless, in compliance with the intention to evaluate innovations from the perception of the recipient culture, innovation is defined herein as ". . . an idea perceived as new by an individual" (Rogers, 1962, p. 13).

Institutionalization. Within the studies of change and education, definitions of institutionalization also vary. All, however, commonly focus on the point at which an innovation is no longer perceived as "new" and has become ". . . part of the routinized behavior" of the recipients or adopters (Berman and McLaughlin, 1975, Vol. 5-vii).

For this study, "routinized behavior," had to be operationalized and, so, the researcher turned to studies in which such a task had been accomplished. It was found that the Research and Development Center for Teacher Education at the University of Texas at Austin had been

working on innovations for several years and could contribute, in part, to an operational definition. That contribution includes a level of routine and a stage of concern at which an innovation can be considered institutionalized.

This researcher believes strongly, however, that the social system into which an innovation is introduced also influences institutionalization. She, therefore, incorporated the aspects of use, concern and social system support into the following definition for use in this study.

Institutionalization is defined as the point in the innovation process at which 1) a majority of adopters is using an innovation at a routine level; 2) a majority of adopters and related personnel have resolved any concern about the management of the innovation; and 3) a high level of continued financial, personnel, training, material and personal support is allocated by the social system into which the innovation has been introduced.

Delimitation

A delimitation within this study is the selection of an innovation particular only to a pre-service teacher education program. Factors influencing in-service innovations were not examined due to the limitation of time and transportation afforded to the researcher at the field site.

A second delimitation was this researcher's inability to read Spanish which confined any review of South American literature to that

translated into English. Unfortunately, few of the governmental reports or educational journals representing that area have been translated into English, restricting the literature review of innovations.

Limitations

The limit of time curtailed access to additional representatives of the Ministry of Education in Lesotho as well as to other original users who had left NTTC and were teaching outside of the region in which the researcher was located.

Distance also restricted access to original developers many of whom, as expatriates working for international development agencies, had not only left NTTC, but Lesotho as well. Although a majority of these individuals did respond to correspondence, others could not be located, let alone reached.

Organization

This study is divided into five sections.

Chapter I. This chapter introduces the setting, problem and purpose of this study. The significance, methodology, definitions, delimitations and limitations are briefly discussed. It concludes with an overview of each chapter.

Chapter II. Devoted specifically to a review of literature from 1960 to 1980, this chapter begins with a current history of innovations in teacher training colleges of developing countries. This history fo-

cuses on the aims and types of innovations.

The chapter continues with a survey of dominant theories and models of innovation research. It reviews several for each of the two decades and emphasizes the lack of research theories and models particularly responsive to or emanating from developing countries themselves.

Finally, the chapter proposes a Wholistic Innovation Model synthesized from those models reviewed. It advocates an approach to research in developing countries which is sensitive to the perceptions of their planners, administrators, and teachers as well as to the conditions within which innovations operate. It is also the model upon which the field-based research of this study is based.

Chapter III. This chapter details the procedures for the field-based research carried out on self-instructional materials at the National Teacher Training College of Lesotho. It interjects, where appropriate, the influence of the Wholistic Model on the selection of these procedures. Discussion is divided into four sections: the site, innovation and data source selection; the researcher's role; the research instruments; data collection methods and analyses strategies.

Chapter IV. An analysis of the data collected on the institutionalization level of SIMs as well as on the factors influencing that level is presented. Both quantitative and qualitative analyses are reported; charts and figures elaborate the narration while sample quotes from interviews and documents embellish the quantitative discussion.

Chapter V. The final chapter includes a summary of findings with ref-

erences to related literature. Implications for educational planners, change agents and innovation adopters are cited, and recommendations are offered.

CHAPTER II

INNOVATIONS AND INNOVATION RESEARCH

As stated in Chapter I, the post-independence decades of 1960-1970 and 1970-1980 demonstrate a considerable need for innovative reform in the development, educational goals, and teacher training programs of many developing countries. Changes in development, however, cannot be termed successful until educational goals are achieved; and the impact of those educational goals cannot be assessed until innovative changes evident, in part, in teacher education programs are first implemented and then evaluated. Accounting for the sequential relationship of these aspects of reform, this chapter begins within a review of the literature identifying innovative changes in teacher education programs between 1960 and 1980. It then continues with a survey of representative research theories and models for evaluating innovations which were prominant during this time. The chapter concludes with a description of one model which was developed as a synthesis of its precursors and used as the foundation for the field-based design implemented in this study.

Innovations in Teacher Education: 1960-1980

Based on development philosophies which advocated equality, nationalism and self-reliance and which represented a variety of political ideologies ranging from communism to socialism to democratic-socialism and to democracy, educational goals and their related innova-

tions in teacher training spanned a wide spectrum of aims and types. Briefly, this first section presents examples of these in the form of a literature review on innovations in teacher training from 1960-1980.

Aims.

1960-1980. As noted in Chapter I, the major educational aims of the 1960's focused on 1) nationalizing personnel and curricula in formal school settings, 2) re-organizing educational institutions to meet priority development needs, and 3) increasing the number of educational opportunities in order to universalize education, specifically at the primary level (Klassen and Collier, 1972; Educational Study Group, 1971; ICET, 1969). These aims necessitated immediate changes within all of the educational systems previously dominated by colonial or "expatriate" advisors and bureaucratic structures: Ministries of Education, institutes and colleges of education, and secondary and primary schools. Thus, secondary and supporting goals were quickly identified: 1) the reformation or training of educational personnel including education officers, school principals and classroom teachers, 2) the restructuring of governmental bureaus, 3) the examination of learning alternatives within and outside formal schooling, and 4) the development of new teacher training curricula, methods and structures (Coombs, 1968; Dodd, 1971).

Sadly, these aims and their supporting goals met with numerous problems, not only caused by economic constraints inhibiting their feasibility, but also by discrepancies in the fundamental premises upon

which aims were based. As the 1960's progressed, it rapidly became apparent that independence had caused many developing countries to react rather than to act, to respond rather than to propose. For example, in striving for nationalism, the reaction had been against colonialism (Klassen and Collier, 1972, p. 75; Soriano in Klassen and Leavitt, 1977, p. 92). Not surprisingly, the vestiges of colonial structures and attitudes were harder to discard than originally assumed. Little thought had been given to their replacements; and, as a consequence, in many instances they never were replaced at all (Coombs, 1968).

Self-reliance was a response to imposed dependence (Klassen, 1970, p. 9; Nyerere, 1967). But this aim was tainted by the presence of an economic dependency which paradoxically contributed to both the survival and oppression of newly independent countries. The term neo-colonialism replaced colonialism as a cadre of national leaders conceived of development in terms of their own personal wealth and elitism similar to that of their former colonial "oppressors" (Freire, 1970; Roberts, 1968).

Although noble in print, the educational aims of the 1960's were much more intricate and difficult to implement than originally thought. As summarized by Peter Kinyanjiu of Kenya, the problems of realism as opposed to the hopes of idealism were facing planners:

> The situation facing educational planners during the early years of independence . . . followed a pattern in many developing countries. This included a high percentage of illiteracy among the adult and working population, increased school enrollment as a result of growing public demand for education, increasing numbers of school leavers who cannot

> be absorbed into the monetary economy, out-of-date curriculum, shortage of money, and shortage of qualified and experienced teachers' trainers and administrators (Klassen and Leavitt, 1977, p. 84).

Mr. Kinyanjiu continued to describe various educational innovations in the teacher education programs which were proposed to meet these problems: increased enrollment; the employment of under or unqualified teachers who would be trained through in-service, correspondence courses; and consolidated programs for greater efficiency. He concluded by saying:

> In spite of these developments in teacher education, the total output of these colleges could not match the rising demand for qualified teachers or even replace the existing unqualified staff in the schools (Klassen and Leavitt, 1977, p. 85).

1970-1980. Fortunately, the late 1960's and 1970's found educational planners pausing to re-examine the aims toward which their countries could and should progress in light of the acknowledged economic, political and social realities. The number of international education conferences during this time attests to these reflective efforts: the 1969 and 1972 World Assemblies of the International Council on Education for Teaching (Klassen, 1970; Klassen and Collier, 1972), the 1970 Commonwealth Education Conference in Ghana (NEIDA, 1979, p. 51), the 1971 Education Study Group Conference of the Institute of Social Sciences and UNESCO (1971), and the 1976 Ministers of Education Conference in Lagos (NEIDA, 1979, p. 48) to name just a few.

What evolved from these efforts were educational aims focusing not so much on the ends or outcome of development but on the means or strat-

egies by which these ends could be attained. Action began to replace reaction, proposals to replace responses (Carnoy, 1977, p. 6). For example, educational changes were formulated on more practical rationale rather than on reactionary aspirations as stated in this recommendation from the ISS/UNESCO conference cited previously: ". . . the first step in educational innovation is general reflection inside and outside the system on the why and wherefore of education" (1971, p. 36).

The educational aims of the 1970's also began to account for the constraints and resources within current systems as identified at the 1979 World Assembly:

> Teacher education systems must be based on present realities and future projections of countries . . . 1) the availability of educational opportunities and the number of students at each educational level, 2) availability of trained, qualified personnel . . . , 3) availability of capital resources to create schools and learning materials, 4) the opportunity for career fulfillment and mobility and society ideals in which the educational system exists (Klassen, 1970, p. 6).

By beginning to recognize the rationale, constraints and resources within educational development, the planners of the 1970's proposed more realistic goals which affected both formal and newly emerging non-formal education sectors. While still aiming toward the nationalization of personnel and curricula and the universalization of primary education, goals were broadened to account for populations previously ignored but acknowledged as both instrumental in their potential contribution toward development and as victimized by problems within the first development decade (1960-1970). Specifically, these populations were those most deprived by the widening gap growing between various societal groups despite changes directed toward equality. Dichotomized

groups were emerging between rural and urban, illiterate and literate, self-sufficient and dependent, agriculturally-based and technological, young and old, male and female, rich and poor (APEID, 1977, p. 28; UNESCO, 1979, p. xxii(b)).

Educational planners had to develop innovative programs which would account for the training of all of these diverse populations in relevant development areas, be they programs in or out of school (Coombs, 1972; LaBelle, 1975). Innovative changes within the formal sector included the reform of curriculum, the diversification of instructional methods and materials, and the restructuring of the teacher's role (Coombs and Hallak, 1972; Philips, 1973; Educational Study Group, 1971, pp. 23-25). Besides being an innovation in and of itself, non-formal education accounted for numerous innovative changes within its integrated development programs, its literacy campaigns, its vocational skill training, and its "political" and social empowerment philosophies (Coombs and Ahmed, 1974; Freire, 1970, 1976, 1978; LaBelle, 1975).

To examine all of these innovations within the context of their educational aims would be a challenging yet inappropriate task for this study. However, the following section within the first part of this chapter reviews some of the types of innovations common to teacher training institutions between 1960 and 1980 which were proposed in developing countries to meet these goals.

Types of innovations. In order to meet these education goals, teacher

training institutions experienced, between 1960 and 1980, a period of reaction and subsequent action comparable to that of the educational system as a whole. The Indian educator, S. N. Mukerji, describes this pattern in the following analysis of pre- and post-1960 attitudes toward innovations:

> Prior to 1961, 'uniformity' dominated the entire field of education, freedom was denied and experimentation was unknown. Today, there is a demand for change . . . innovations are on the anvil, and it is very difficult to keep a record of all of them . . . (Klassen and Collier, 1972, p. 83).

What may assist a review of these numerous innovations within teacher education in the 1960's is to categorize them into three basic areas: 1) curriculum, 2) instructional methods and materials, and 3) program structure. For innovations in the 1970's, the fourth area of teacher personnel and teacher role may be added. This next section, therefore, presents a survey of innovation types according to these four areas and, where possible, according to their respective decade. Country-specific references are made when possible and appropriate.

Curriculum. Despite the goal of nationalism in the early 1960's, the content of teacher education curricula often was criticized for perpetuating the "colonial" emphasis on academic subjects and for devaluing pedagogical and development courses (APEID, 1977, pp. 29-30). This emphasis had previously been based on the assumption that ". . . if a person knows his subject, he will be able to teach it" (Klassen, 1970, p. 14). A representative criticism of this assumption was cited at an African seminar on the evaluation of an interdisciplinary approach

to teacher education:

> In teacher training, far more attention is paid to the diversity and value of knowledge than to learning how to teach; and the acquisition of encyclopedic knowledge takes precedence over vocational training and understanding of children (UNESCO, 1970, p. 8).

In response to this criticism, innovative changes were introduced to teacher education curricula through such courses as foundations, child psychology and pedagogy (Dodd, 1971; ICET, 1969; George, 1976). These were either incorporated for the first time or were upgraded in "status" to the level of academic subjects. A brief example of this innovative curricular change is cited in the 1960's at the Julius Nyerere Higher Normal School in Guinea, West Africa where two-thirds of the curricula for secondary teacher trainees was devoted to pedagogy and one-third to academic subjects (Bolinbaugh, 1972, p. 40).

Not only were the colonial academic areas de-emphasized, but their content was redesigned to be more relevant to development needs. Agriculture, moral studies and civics government, community development, health and home economics were typical of those introduced. With the flight of Sputnik came a flurry of science teaching programs in training colleges (UNESCO, 1970, 1974) and the development of the African Primary Science Program (Ohuche, 1974).

With the realization that a gap was growing between urban and rural areas came an emphasis in teacher education curriculum on rural development. An example of how one program incorporated this is the Rural Teacher Education Project of Thailand initiated in 1956 through a UNESCO grant. This project required the participation of ". . . teach-

er trainees in community development activities" (Attagara in Klassen and Collier, 1972, p. 92) where they were ". . . to carry out the double role of educator and community leader" (Attagara in ICET, 1969, p. 6). By 1969, all of the 25 teacher training colleges in Thailand had participated in this project by incorporating community development courses into their curricula and by providing practical experiences for their students in rural communities.

This innovative, experiential component within the Thailand project also was evidenced in other training programs as student teaching opportunities began to diversify. A series of short-term practica or extended internships replaced the traditionally limited two to four week requirement (Fafunwa and Pires in Dodd, p. 18).

To summarize curricular innovations introduced to teacher training colleges between 1960 and 1980, they may be generalized as ones rejecting the purely academic orientation of the colonial period while affirming the educational, developmental and practical aspects of teaching. Those innovations introduced in the 1970's continued this affirmation while balancing it with the introduction of academic specializations and the upgrading of trainees' basic knowledge in general academic areas. The curricular innovations which were seen as the most innovative were those in new instructional methods and materials <u>in</u> which trainees were taught within their pedagogy courses. Because they relate so closely to the same methods and materials <u>by</u> which trainees were instructed by teacher educators, both innovations are included in this next section on methods and materials.

Methods and materials. At a 1967 conference of educators in India, Dr. Malcolm Adiseshiah, the Deputy Director-General of UNESCO, said:

> We find in education an antediluvian technology which would not survive in any other economic sector. The teaching methods and learning techniques . . . are rusty, cranky and antiquated (quoted in Coombs, 1968, p. 114).

Such criticism was common during the 1960's, and teacher training institutions experienced numerous innovations within their methods and materials by which and in which trainees were instructed.

Basically, such innovations attempted to change the traditional teacher-centered approach to teaching and learning to a student or community-centered approach. As noted earlier, the colonial philosophy of education advocated an academic, knowledge-based curriculum. Inherent in this was also a teacher-centered instructional method. Teaching in the early independence period was criticized for its "banking system" assumption that knowledge was to be "given" or "transferred" from the teacher to the student (Freire, 1974; UNESCO, 1978, p. 44). The most common method of instruction which demonstrated this assumption was referred to as the "chalk and talk" method or the lecture, and it permeated teacher training institutions. In the Punjab Province of India, Dr. Evely Marr surveyed three colleges of education and found that:

> The methods of teaching most commonly employed by teacher educators were lectures, lectures cum discussions, and lectures supplemented by assignments. There were a few notable exceptions, but generally, the teacher educators were not trying out in their own teaching the progressive methods which they were discussing with their students (Commonwealth Secretariate, 1973, p. 282).

The post-independence goals of nationalization and self-reliance rejected this teacher-centered methodology. How could teachers assist students in becoming self-confident, active and independent citizens if teachers themselves were not taught how to be self-confident, active and independent thinkers? As Jaime Benitez, then president of the University of Puerto Rico, stated in 1969 concerning teacher training:

> If education is acquired preeminently by means of learning, and the role of the student is conceived as an active rather than passive one, it is imperative at the same time to revise the function corresponding to the teacher. The task of supplying information and making sure that this is acquired by the student will cease to be his chief role (ICET, 1969, p. 2).

Thus, innovative teaching methods and materials by which teacher trainees were to be instructed appeared in training institutions. Examples of these were demonstration lessons and micro-teaching, team-teaching, small group activities including discussions, field trips, problem-solving techniques and laboratory experiments (Dodd, 1971, p. 18; Klassen et al., 1970, p. 153; Prasad in APEID, 1977, p. 82). The introduction of courses on group dynamics, interaction analyses, and non-verbal communication assisted trainees in understanding why and how these new methods worked while teacher trainers used them (APEID, 1977, p. 47; Klassen and Collier, 1972, p. 9). Also introduced was competency-based instruction, in part to decrease the amount of teacher-directed learning and to increase self-directed and resource-based learning (Hanson, 1971; UNESCO, 1977, p. 8).

A sample program in which several of these innovative methods and

materials were evidenced was that of the Abraka College of Education in Nigeria. In collaboration with several donor agencies, the government of Nigeria had proposed in 1972 to transform the Primary Teacher Training College in Abraka into a College of Education. Upon the termination of its funding grant in 1977, various innovative methods of instruction were reported as having been implemented: micro-teaching, competency-based learning, modular units, demonstrations, laboratory experiments and field experiences on an agricultural science farm (UNESCO, 1978(a)).

Indicative of the rapidity and extremity of change within instructional methods and materials as the two development decades progressed were those innovations in the area of technologically-based products, both commercially and locally constructed. There can be no underestimation of the effect (positive and negative) that technology has had on teacher education in developing countries. Along with those at Abraka College, teacher trainees elsewhere were being taught through the closed-circuit T.V.'s of micro-teaching labs (APEID, 1977, p. 40; APEID, 1979; Grady in Klassen and Leavitt, 1977; Miltz and Marks, 1979). Radios were supplementing both pre-service and in-service, distance teaching programs (Razik, 1980; UNESCO, 1978). Tape recorders as well as slide and film projectors were being introduced as instructional methods and materials.

A considerable investment in both commercially and locally developed materials was evolving. Although few references in the literature mentioned the textbooks teacher educators were using in their classes,

the use of instructional or self-instructional units was described as well as of programmed-learning modules (Klassen and Collier, 1972, p. 9; Klassen and Leavitt, 1977, p. 77; NEIDA, 1981, p. 25; Normington, 1970, p. 162). Most often these self-directed materials were mentioned in the context of in-service, distance teaching or correspondence courses (APEID, 1979; Razik, 1980) although some evidence of them was found in pre-service programs as well (Anzalone, 1977).

One example of a teacher training institution which used both technology and locally developed materials was the In-Service Teacher Training Institute of the Ministry of Education in the Sudan. In 1977, this institution had 19 centers and 48 sub-centers which serviced 8,000 untrained teachers who had been recruited for primary schools. Through instructional materials and multi-media methods, the institute attempted to carry out its upgrading courses (Ministry of Education-Sudan, 1977).

It is difficult to identify all of the innovative methods, approaches or techniques in which teacher trainees were taught as content within their pedagogy courses. Many were similar to those by which they were taught. However, as the forementioned quote by Dr. Marr concludes, teacher trainers were not often teaching through the methods which they were introducing to their students. Following is a brief overview of those innovative methods which sometimes were included in teacher training courses. Three specific areas assist in categorizing these: classroom management, instructional methods and materials.

First, innovative classroom management approaches often attempted

to make use of small group structures. The creation of interest or study centers was encouraged as was the use of individualized instruction (Ohuche, 1974). Planning by objectives and the evaluating of students through continuous assessment was advocated (Klassen, 1970, p. 12). The abolition of corporal punishment was promoted.

As for instructional methods and materials, many already have been cited in the previous section dealing with methods by which trainees were instructed. Additional ones, however, include the use of brainstorming, case-studies, role-plays, panels, projects and field-trips (Dyasi, 1977; UNESCO, 1977, p. 40). Radios, televisions, tape recorders and record players were mentioned; but, often because of the limited access to these by teachers in primary and secondary classrooms, they were not emphasized (APEID, 1977; APEID, 1979; Universiti Sains Malaysia, 1979, p. 28). Trainees were encouraged to develop their own teaching materials in the form of modules, self-instructional materials, posters, charts and flannel boards (Klassen and Leavitt, 1977, p. 77).

These innovative methods and materials by which and in which teacher trainees were taught during 1960 to 1980 should not be seen as ubiquitous. Many were used on an experimental, pilot-test basis; many were adapted to traditional methods and materials such that they ceased to exist in their original form; many were dependent on external funding or sustained technological input which ceased after a time.

Some educational planners and teacher training personnel quickly recognized the incredible "costs" of technological and commercial materials. This recognition was not just economically based. It was

socially and culturally perceived as a continuation of colonial dependency. To assume, therefore, that these innovations were readily accepted and institutionalized by a massive number of teacher training colleges is unrealistic and, as stated in Chapter I, is the particular concern of this study.

Institutional structure. The institutional structure of teacher training changed dramatically between 1960 and 1980 from the "normal school" to the "pre-service" and "in-service" concepts. This change occurred aggressively, as did the recognition that universal education and the nationalization of personnel meant a drastic shortage of trained teachers. Statistics often tell woeful tales, and those which deal with under- or unqualified teachers during this period are no exception: "In Uganda . . . in 1968, 25 percent of the total primary school teaching force of 20,000 were Grade I, with only 6 years of primary education or less plus 2 years of professional training" (Klassen and Collier, 1972, p. 25); in Malaysia, "Despite the existence of 26 Teacher Training Colleges . . . there are almost 15,000 untrained uncertified temporary teachers . . ." (APEID, 1979, p. 18); and, lastly, in Thailand, ". . . some 2.3 million additional teachers were trained and recruited in the 10 years since 1965" (APEID, 1978, p. viii).

Various stop-gap measures were proposed by teacher education programs to meet the dilemma of teacher shortages. Traditional, pre-service programs were varied in length to give credit to trainees already experienced in teaching. This created a graded-certification structure which was popular particularly in Africa (Bolibaugh, 1972;

George, 1976; Klassen, 1970).

The innovative concept of in-service teacher education emerged, and regional centers were established at which teachers, already in the classrooms, could attend short-term skill building sessions entitled "seminars" or "workshops" (Bolibaugh, 1972). During their vacations or released time, participants came into the major cities where either the regional center, school of education, or Ministry of Education was located. Workshop facilitators, in the form of national education officers, or expatriate consultants, would attempt to meet the participants of these workshops in follow-up sessions within their own classrooms. This workshop or seminar approach became popular in the 1960's and 1970's as an innovative structure for upgrading the skills of untrained or under-trained teachers (Durstine and Hudson in Coombs and Hallack, 1972, Ch. 14).

The 1970's saw a continuation of the workshop approach, but the addition of technology and commercially or locally developed instructional materials in order to increase the efficiency of in-service training. At an African regional workshop on educational innovations for rural development and teacher training, six instructional strategies were proposed based upon these innovations. They are listed here along with those countries at the workshop which indicated using them:

1. Distant Teaching - Lesotho
2. Itinerant Teacher Training - Tanzania
3. Radio - Ethiopia, Lesotho, and Tanzania
4. Instructional Modules - Guinea, Kenya and Sierra Leone

5. Correspondence - Lesotho and Tanzania (NEIDA, 1979, p. 32).

Similarly, the UNESCO Regional Office for Education in Asia and Oceania proposed the following innovations for restructuring in-service programs:

1. Self-instructional materials
2. Distance teaching
3. Micro-teaching
4. Team teaching
5. Reduced instruction-time programme
6. Multi-media package programme
7. Simulated/CCTV programme
8. Correspondence course with minimal use of postal service (APEID, 1979, p. ii).

These two lists and the previous discussion provide a survey of innovative structures introduced during the period of 1960-1980. The importance of one, centrally located educational institution at which all trainees resided had diminished. Due to an analysis of cost-effectiveness in retraining rather than disqualifying the un- or under-trained teachers already in the field, teacher education institutions developed an alternative to the pre-service concept in the form of diverse in-service programs. Thus, teacher education, as a whole, adopted new structural approaches to training.

Training personnel. While the content, methods, materials and structures of teacher education underwent innovative changes during both the 1960's and 1970's, the area of training personnel was most

dramatically altered in the 1970's with the emergence of both a rural development approach to teacher education and a non-formal education approach. As noted previously, the need to educate those populations which had been historically excluded from formal school settings promoted the development of educational programs conducted outside of the traditional classroom as community development projects.

In order to train personnel for these projects, both teacher education and non-formal education programs re-examined the role of the teacher. For the formal classroom teacher, the Asian Programme of Educational Innovation for Development proposed eleven such changes in its 1977 handbook on Preparing Teachers for Education in Rural Development. These eleven viewed the rural teacher as 1) a communicator of national policies and programs, 2) a promoter of these, 3) a rural reconstruction worker, 4) an interpreter for the community to government agencies, 5) a learner of community problems, 6) a change agent, 7) an innovator of methods, approaches and techniques of instruction, 8) a problem solver, 9) an organizer for mobilizing community resources, 10) an integrator of experiences obtained from outside and inside the school, and 11) a coordinator of programs (pp. 32-24). These roles were prominant in much of the literature reviewed on teachers in rural development (Klassen et al., 1970; Klassen and Collier, 1972; Klassen and Leavitt, 1977, 1978, 1979; NEIDA, 1979; UNESCO, 1978).

This formal education concept of the "polyvalent" teacher was not enough for many of the developing countries which were considered in capitalist terms as the communist countries. Within these countries,

the concept of teaching personnel underwent radical innovative changes. The Cultural Revolution in China is one example in its doctrine of farmers and laborers as teachers, and teachers as farmers and laborers.

In Guinea Bissau at the Maxim Gorki Center for the Formation of Teachers, the philosophy of teachers as worker-citizens, and worker-citizens as teachers has been dominant. Student teachers worked daily with local farmers and learned from them about development needs; the farmers, in turn, were assisted in meeting those needs (Freire, 1974, pp. 430-44). In Cuba the training of young literacy teachers as co-workers with the illiterate also demonstrated an innovative role of teacher (Kozol, 1978). These approaches considered radical by non-socialist societies, interestingly recall the educational goals of those very same countries from the early 1960's: self-reliance and equality. It appears that the extent to which new teacher roles meet development aims in an "appropriate" manner is often open to political and ideological interpretation.

Outside of the formal school setting within the field of non-formal education, the role of the teacher was also changing in order to meet development needs. This non-formal education movement had its corner-stone in rural development as did formal education but saw its primary clients rather as those outside of the formal classroom. These clients included out-of-school youth and adults who were involved in projects which enhanced literacy, health, business, agriculture or other skill areas contributing to both community and individual development. The innovative role of the teacher in these projects was that of the teacher-

learner or facilitator. Based on the belief that "teachers" in rural development should be local citizens, non-formal education advocated the abolishment of a traditional teacher's role and the introduction of a co-learner, peer-guidance role (Coombs and Ahmed, 1973; Freire, 1976; LaBelle, 1975). Uncertified non-professionals were often self-selected for these roles and trained in the techniques of group discussion and community organization. While dissimilar in clientele, both teacher education and non-formal education programs were re-examining the concept of teacher and implementing innovative roles.

These changes in the role of the teacher as those within the curriculum, methods, materials, and structures of formal teacher education programs represent a review of innovations within teacher education institutions during the past, two development decades of 1960-1970 and 1970-1980. As stated in the introduction to this chapter, the effect of these innovations could not be assessed until evaluated. Thus, the second section of this chapter continues with a review of the literature on various theories and models of innovation research prominant during this period.

Innovation Research: 1960 to 1980

Having identified the types of innovations presently being promoted in teacher education programs in developing countries, the second section of this chapter will survey the literature of various theories and models upon which innovation research has been based during the last two decades. The chapter will conclude with a model which syn-

thesizes the surveyed research and provides the foundation upon which the field-based design of this study is centered.

Research in the 1960's. Research on educational innovations as change mechanisms in the 1960's owed much of its incentive to forces outside any university setting. Throughout this century, as the amount of knowledge to be presented to students exploded so abundantly and rapidly, educational systems globally began to be held accountable publicly for the effects of their educational practices, particularly innovations. Government agencies providing funds for education, private and public enterprises hiring graduates of school systems, communities incorporating students as citizens, parents living daily with their children, and students themselves experiencing such practices--all began questioning the rationale for and the effects of various educational innovations.

This is not to say that educators themselves within educational systems were not equally concerned with the quality of services being offered to children. It is only to say that the literature on research of educational practices, including innovations, increased both in Western publications (Rogers, 1962) and in Third World publications (Havelock and Huberman, 1977) when the pressures of interest groups seeking accountability surfaced publicly and demanded valid and reliable assessments of educational practices.

The response of educators in the 1960's was to examine which innovations or changes in educational practices were effective. To their chagrin--at least initially in the Western literature (Rogers, 1962)

and later in the Third World literature (Havelock and Huberman, 1977) --it was difficult to assess the effects since most innovations either had failed to be institutionalized or had been adapted so drastically that they no longer existed in their original form. The focus of research on innovations quickly changed from examining the after-effect to assessing the process of innovation: how an innovation was initiated, adopted and institutionalized within an educational setting. But how was this assessment to occur? Upon what theories or practices was research on educational innovation going to be founded? Three particular individuals were prominent in the 1960's with their answers: Everett Rogers, Elihu Katz and Matthew Miles.

Rogers. Everett Rogers in his review of 500 diffusion research studies entitled Diffusion of Innovations (1962) proposed that the study of how innovations spread within social systems (i.e. diffusion) was rooted in six Western research traditions. These six were anthropology, early sociology, rural sociology, education, industry, and medical sociology. He hastened to add that "There has been a very adequate diffusion of diffusion research findings among those researching the topics" (1962, p. 55). Following is a brief summary of how, according to Rogers, these traditions contributed to innovation research.

First, in the field of anthropology, particularly in the 1950's, the practice of a participant observer descriptively analyzing a society and its reaction to an innovation and change was typical. The influence of a society's culture on the acceptance or rejection of an innovation was the focus of research. Early sociology also looked at a

society's reaction but from a statistical research approach in which secondary sources of data such as town records were used. The influence of particular social groups within a culture was emphasized.

Contributing more to innovation research than these two traditions, however, was the field of rural sociology, especially as land grant colleges were building up their capabilities in research on farming techniques. Extension workers used personal interviews and statistical analyses based on these interviews. They offered findings on the characteristics of innovation adopters (e.g. their innovativeness), on their rate of adoption, and on the information sharing process during diffusion.

According to Rogers, education as a tradition was very weak in contributing findings to the area of innovation research. Only a few of his 500 studies came from this field. Nonetheless, it did elaborate on the rural sociology concept of adopter innovativeness. So, too, did the industrial tradition. More importantly, though, this tradition contributed the case-study approach concentrating on which products were selling best, to whom and why. Public health officials in the medical sociology field tried to answer these same questions about pharmaceutical projects through their personal interview and statistical analyses approach. They also focused on adopter characteristics and on the role of opinion leadership in the diffusion of innovations.

All of these traditions contributed to the state of literature on Western innovation in the 1960's. Little study, unfortunately, was being conducted on diffusion of innovations in developing countries by

either Westerners or nationals. Rogers stated:

> Perhaps generalizations about diffusion in 'underdeveloped' countries are hazy because our reseach is relatively 'underdeveloped' in those non-Western cultures . . . only 39 of the 465 studies (exclusive of the anthropological tradition) reviewed here had a locale in a less developed area (1962, p. 72).

Thus, in the Western research tradition terms such as adoption, adopter, diffusion, communication, and extension worker had become commonplace. But Rogers also found that these traditions, while sharing terms, were not sharing their findings; and, so, he attempted to analyze and synthesize them himself.

To begin this task, Rogers first defined innovation in an innovative way. To him, it meant ". . . an idea perceived as new by an individual" (1962, p. 13), thus presenting the non-conventional concept that an innovation was determined as such by the perception of the adopter, not by the presumption of the developer. Next, Rogers differentiated between two previously combined and, therefore, confused terms: adoption and diffusion. He contended that if only one person adopted or decided ". . . to continue full use . . ." (1962, p. 17) of an innovation, that did not infer that the innovation had been accepted by anyone other than the sole individual. In order for innovations to be accepted institutionally or to be "institutionalized," they first had to be shared with others. This ". . . spread of a new idea from its source of invention to its ultimate users or adopters . . ." was termed diffusion by Rogers (1962, p. 13).

These two terms, adoption and diffusion, were the bases upon which

Rogers founded his research in the 1960's and upon which later researchers, soon to be discussed, based theirs. It is necessary, then, to present a thorough explanation of these terms and their role in this brief survey of innovation research. Such an explanation begins with Rogers' citing of a second diffusion researcher, Elihu Katz.

As Rogers quoted Katz:

> It is about as unthinkable to study diffusion without some knowledge of the social structures in which potential adopters are located as it is to study blood circulation without adequate knowledge of the structure of veins and arteries (1962, p. 16).

Agreeing with Katz, Rogers proposed that the adoption of an innovation first by an individual and, then, through diffusion, by other potential adopters did not occur within a vacuum. Indeed, the social system through which and by which an innovation was diffused had to be considered. Thus, Rogers formulated a concept of innovation diffusion which consisted of four elements: 1) the innovation itself, 2) its communication from one individual to another, 3) within a social system, 4) and overtime (1962, p. 12).

With these four elements as categorical guides, Rogers analyzed his 500 diffusion studies and observed certain findings, findings which occupied the forefront of innovation research questions for the next two decades. These findings redefined the initial four elements as four aspects of innovation diffusion which inhibited or supported the adoption of an innovation. These were renamed as: 1) innovation characteristics, 2) adopter categories, 3) social system effects, and 4) stages of adoption. Briefly, each will now be explained.

Rogers found that throughout the 500 studies, the characteristics of innovations were recurrent topics. These could be categorized into five groups representing specific criteria by which an innovation was either accepted or rejected: 1) its relative advantage--how superior it was over other ideas or practices; 2) its compatibility--how consistent it was with existing values and past experiences of an adopter; 3) the complexity or difficulty an adopter had in understanding or using an innovation; 4) its divisibility or the degree to which it could be tried on a limited basis; and, finally, 5) its communicability--whether or not it could be easily diffused (1962, p. 124).

Recognizing that it was the adopters themselves who defined the characteristics of an innovation, Rogers also categorized adopter characteristics:

> Adopter categories are the classification of individuals within a social system on the basis of innovativeness. The five categories utilized here are innovators, early adopters, early majority, late majority and laggards (1962, p. 19).

Rogers presented a composite picture of these categories according to their "salient values," "personal characteristics," "communication behavior," and "social relationships" (1962, p. 185).

In addition to this composite, Rogers proposed five stages through which an individual would pass in adopting an innovation: 1) awareness, 2) interest, 3) evaluation, 4) trial, and 5) adoption (1962, p. 79). Figure 1 presents Rogers' collaboration with Beal on how adopter categories relate to the stages of adoption within a diffusion process of either personal or impersonal communication (1962, p. 180). Depending

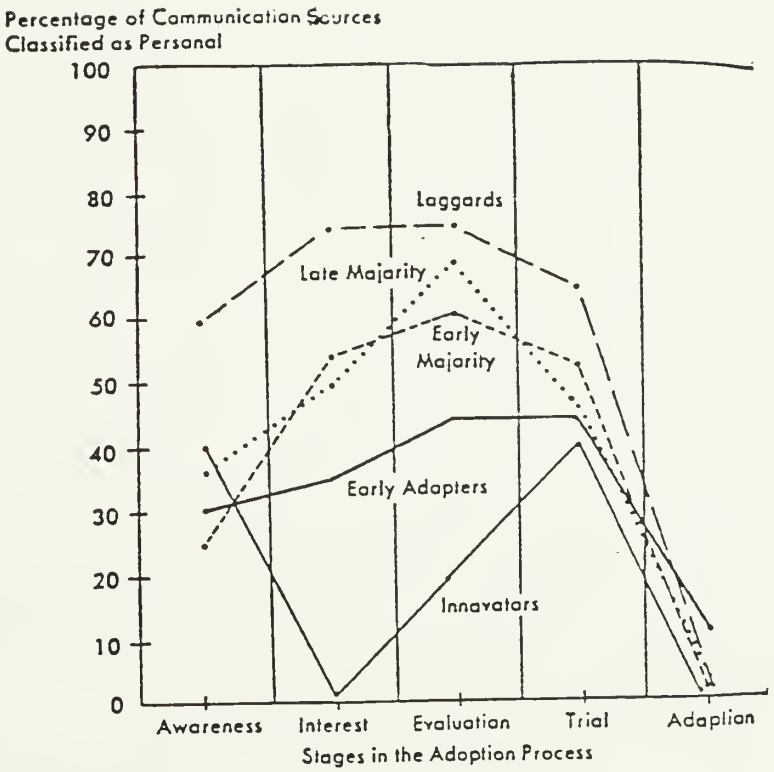


Figure 1. Percentage of Personal Communication Sources at Each Stage in the Adoption Process by Adopter Category for 2, 4 D Weed Spray

SOURCE: Rogers, 1962, p. 180, reprinted with permission.

upon which stage an adopter is in, a particular category of adopter emerged and particular forms of communication were appropriate for diffusion. Such findings greatly influenced the kinds of activities diffusion agents pursued during the next twenty years and the theories investigated by innovation researchers.

Less developed was Rogers' analysis of social system effects on innovation diffusion. What little Rogers did was limited to a discussion of whether or not an adopter perceived an innovation to be socially or economically acceptable. Equally limited, but still influential, were Rogers' conclusions about those members within a social system who played key roles in diffusing innovations. These members Rogers labeled as "opinion leaders," and their relationship to "change agents" or "extension workers" as analyzed by him hinted at later findings on the process of innovation. No longer would innovation research focus just on the characteristics of adopters or innovations nor on the stages of individual adoption.

Probably the most daring and intriguing contribution Rogers made to innovation research was his listing of fifty-two generalizations about innovations and their diffusion. Certainly, these generalizations proposed hypotheses which would be tested throughout the following two decades. Relevant particularly to the design of this study, however, were the four basic conceptual aspects of innovation which he categorized: innovation characteristics, adopter categories, social system effects, and stages of adoption. These serve as guideposts through the maze of innovation research.

Katz. Also researching innovation during the 1960's was Elihu Katz (1963). Where Rogers had begun to examine the role of communication in the diffusion process, Katz and his associates, Hamilton Herbert and Martin Levin, continued. They advocated that diffusion was one of the most influential factors in the institutionalization of an innovation, and their definition reflects this belief:

> The process of diffusion is defined as the (1) acceptance, (2) over time, (3) of some specific item--an idea or practice, (4) by individuals, groups or other adopting units, linked to (5) specific channels or communication, (6) to a social structure, and (7) to a given system of values or culture (Katz et al., 1963, p. 237).

This emphasis confirmed the change in focus of innovation research in the 1960's from the particular characteristics of adopters and innovations themselves to the general process of adopting and institutionalizing an innovation.

Like Rogers, Katz turned to disciplines outside the field of education for assistance in conceptualizing and assessing the innovation process. He referred to the various perspectives anthropologists, sociologists, health practitioners, and marketing researchers contributed. Anthropologists offered the study of groups as "units of adoption" in place of the study of individual adopters. This initiated innovation research on intergroup, not just intragroup relations and, subsequently, on developer/change agent/user relations. Also, the study of compatibility between a culture and an innovation was enhanced.

Sociologists looked more closely at innovations through the anthropological lens by focusing in on the social dynamics within inter/intra-

group relationships and on the various channels of communication inherent in their interactions. Sociological studies were practically oriented and contributed in developing a "time-of-adoption" measure by which a group's initial use of an innovation could be assessed. Health practitioners and marketing researchers also employed this measurement but, due to the consumable characteristics of their innovations or products, they continued to focus more on one side of relationships: that of the individual adopter and his/her perceptions of influential communication channels.

As with Rogers, Katz emphasized that:

> . . . diffusion researchers in the several traidtions which we have examined scarcely know of each other's existence. . . . As a result, each tradition had emphasized rather different variables and a characteristically different approach (1963, p. 240).

Katz proceeded, therefore, to synthesize these and to recommend common areas for further innovation research. According to his definition of diffusion, he categorized the various elements within the innovation process as follows: acceptance, time, item, adopting units, channels of communication, social structure, and system of values of culture. To Katz, if these elements could be segregated and then measured, the field of research on innovation would be enlightened. In order to assist that happening, he encouraged the research tasks which follow:

1. a more refined definition of 'acceptance'
2. more ingenuity in looking at the relationship of time to innovation acceptance
3. development of a 'content analytical' scheme for classifying the innovation being diffused
4. attention given to the unit of adoption

5. an examination of the interpersonal channels of communication within a larger social structure
6. comparative studies in which the same item would be diffused in different social structures
7. the notion of compatibility between the innovation and the recipeint culture of individual (1963, p. 252).

As will be evident shortly, subsequent research on innovation heeded Katz's recommendations.

Miles. The third innovation researcher prominent in the 1960's was Matthew Miles in collaboration with others at Teachers College, Columbia University. Miles is of particular interest to this thesis, for his writings center specifically on educational innovations, not on general diffusion studies as did Rogers' and Katz's. Miles' book, Innovation in Education (1964), actually was one of the first compilations of essays by Western educators on their experiences with educational innovations. At last, innovation theories particular to the field of education were coming into their own right.

In his introductory essay to Innovation in Education, Miles claimed that "contemporary change efforts" had failed because their focus had been too much on the characteristics of the innovation rather than on the innovation process. If an innovation were considered of great benefit, then, of course, it would be adopted and institutionalized by an organization, in Miles' case, a school district (1964, p. 2). If not, some other factor aside from the innovation itself must have affected the process. Miles surmised, therefore, that educators involved in change had failed to answer the following questions before introducing an innovation to their systems:

1. What are the properties of educational systems--as opposed to other types of systems--which appear to exert pronounced effects on innovation attempts?
2. What are the underlying characteristics of an innovation?
3. What are the pre-existing conditions in the system which may facilitate or hinder change?
4. What are the processes during change? What, actually, seems to go on as an innovation encounters a system?
5. What are the characteristics of the innovative person or group?
6. Under what circumstances is an innovation likely to be rejected by members of a target system?
7. What are the reasons for changes in innovation rates? Under what circumstances does a system begin to innovate at a different rate than previously? (1964, pp. 40-43).

Several of the contributors to Miles' book shed light on either the research methods appropriate for examining these questions or the hypotheses upon which they could be based. One contributor in particular must be mentioned since his studies broached the area of innovation adaptation, a focus of research in the 1970's which will soon be cited. This contributor was Paul Mort, also from Teachers College, Columbia University, who responded to Miles' fourth question on processes during change. Based on 200 studies of educational institutions, Mort proposed that innovations and adopting institutions "adapted" to each other and that this "adaptation" took such a long time that change evolved, rather than occurred spontaneously. Within that evolution, both the innovation and adopting individuals and institutions adjusted and adapted to each other (1964, p. 326).

In summary, it is evident that research on educational innovations during the 1960's was initially rooted in the traditions of anthropology, sociology, health, education and industry. Subsequently, it

branched out to tap the propositions of contemporary diffusion studies. New hypotheses emerged. Innovations were no longer determined as acceptable based solely on their inherent characteristics. Instead, those characteristics were only one of several aspects within a larger concept entitled the innovation process which was found to exert significant influence over acceptance or rejection. These additional aspects were adopter categories, adoption stages, communication channels, and social system effects. Research questions surrounding each of these promoted many more studies on innovation in the late 1960's and led the journey toward the equally diverse but more substantive studies of the 1970's, now to be surveyed.

Research in the 1970's. Despite the massive increase in the studies on innovation in the 1980's as Western researchers reported their own findings and then critiqued each other, several distinct theories emerged which served as landmarks. In this section, six such theories and their respective proponents will be discussed: the Diffusion Theory of Rogers and Shoemaker (1971), the Linkage Theory of Havelock (1973), the Adaptation Theory of Berman and McLaughlin (1974-78), the Concerns-Based Adoption Model of Hall, Loucks, et al. (1973-82), the Political Model and the Adaptive Model of Lindquist (1978, 1979).

Rogers and Shoemaker. To begin, one of Everett Rogers' recommendations at the end of his 1962 publication, Diffusion of Innovation, was that in ten years an updated version on the same topic should be written. He followed his own adivce, and, in 1971, the second edition

entitled Communication of Innovations: a Cross-Cultural Approach was published, written by Rogers in collaboration with Floyd Shoemaker. A basic difference between the 1962 and 1971 editions was Rogers' approach to the adoption process. While the emphasis previously had been on the term "adoption," he and Shoemaker replaced "adoption" with the term "innovation decision process" (1971, p. 99).

The rationale behind this new "innovation decision process" was that an individual adopter's behavior was not spontaneous at the moment of adoption or rejection. In fact, behavior before and after initial adoption was equally influential in the survival or demise of an innovation. Rogers and Shoemaker, therefore, linked the five stages of adoption (awareness, interest, evaluation, trial and adoption) from Rogers' 1961 work to four stages within the innovation decision process (knowledge, persuasion, decision and confirmation) (1971, p. 102).

These two stages were interrelated, as depicted in Figure 2, at points where information could either cause a decision and subsequent behavior or, vice versa, cause a behavior and subsequent decision. Rogers and Shoemaker hastened to say that general decisions were constantly being made which affected the adopter's behavior in addition to the specific decisions preceding trial behaviors as shown in Figure 2.

As Rogers and Shoemaker also said, there were numerous and conflicting terms and numbers of stages emerging within innovation studies during the 1970's, but ". . . researchers generally recognize that adoption is the result of a sequence of events and not random behavior" (1971, p. 101). By relating the behaviors of stages of adoption to re-

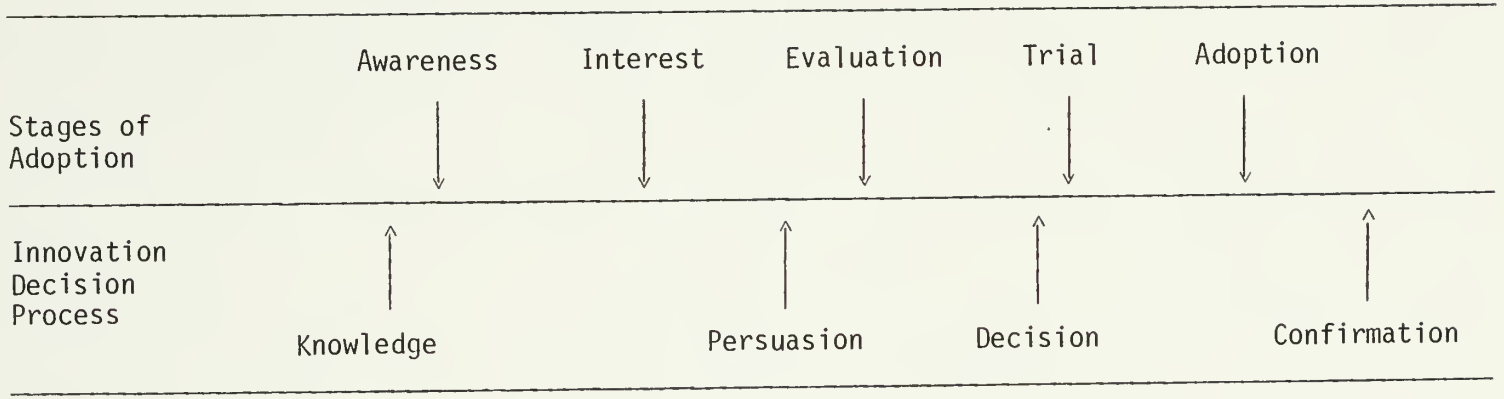


Figure 2. Stages of Adoption Relating to the Process Innovation Decisions

spective decision-making points, Rogers and Shoemaker attempted to conceptualize and summarize what they believed to occur in the innovation process.

As for the types of innovation characteristics cited in the 1961 edition (relative advantage, compatibility, complexity, divisibility and communicability), these researchers renamed the last two as trialibility and observability (1971, p. 158). In addition, they cited three other factors which were found to influence the adoption or rejection of an innovation. These were: 1) the type of innovation design --whether it was optional, collective or authoritative, 2) the kinds of communication channels--whether they were mass media or interpersonal, and 3) the social system into which the innovation was being introduced --whether it was modern or traditional (1971, p. 158).

Adopter categories, ". . . the degree to which an individual is relatively earlier in adopting new ideas than other members of his social system" (1971, p. 180), still intrigued Rogers. From an analysis of 3,000 diffusion documents at their center at Michigan University, he and Shoemaker proposed several variables which affected these categories. They included the socio-economic status, personality and communication behavior of the adopter. Indeed, most of this second edition discussed how these three variables were accounted for within the innovation decision process. This discussion included an analysis, first, of the role of the opinion leader and, then, of the change agent and adopters. Finally, the concept of collective decision-making within groups and within organizations was elaborated.

In summary, Rogers and Shoemaker initiated an innovation research approach that viewed the adoption and institutionalization of an innovation as a process incorporating and being affected by all of the variables--stages, characteristics or categories--previously cited. This process included three sequential steps: 1) the invention of the innovation, 2) its diffusion, and 3) the consequences it had (1971, p. 7). However, as they state:

> As yet there has been no diffusion research designed to determine the relative contribution of each of the types of variables shown . . . that explain an innovation's rate of adoption. When such an inquiry is accomplished, we shall possess a much more adequate basis for planning and allocating the inputs for diffusion campaigns designed to speed the rate of adoption (1971, p. 160).

Havelock. One researcher who undertook such research contributed greatly to the design of diffusion campaigns was Ronald G. Havelock whose work in 1971 will now be briefly discussed. Basically, Havelock examined both theories and practical studies of change and innovation, organizing them into what he entitled the "linkage" model. His examination was applauded for its extensiveness since Havelock and his collaborators at the Center for Research on Utilization of Scientific Knowledge of the University of Michigan reviewed approximately 4,000 sources, half of these current at that time. Havelock, himself, cites this rapid expansion of literature on innovation: 50 relevant studies in 1954, 500 in 1964, and approximately 8,000 in 1971 (1971, pp. II-1).

Looking at innovation dissemination and utilization (comparable in definition to Rogers' diffusion and adoption concepts) as an "act of communication," Havelock organized these 4,000 sources into three theo-

retical categories: 1) Research, Development and Diffusion, 2) Social Interaction, and 3) Problem-Solver (1971, II-4). An explanation of each follows.

The "Research, Development and Diffusion" perspective (R, D and D) was based on a marketing approach. Innovations were viewed as "products" to be researched by developers or change agents and then "sold" to consumers. Emphasis was placed on the quality of the product and on the diffusion process by which a change agent persuaded the consumer of that quality. If one were to diagram or trace the direction of communication within that process, it would initiate from the developer and lead toward the consumer:

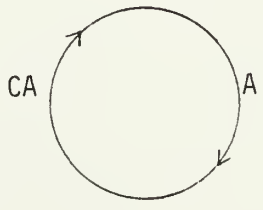
D--------> C .

Based on anthropological and sociological theories, the "Social Interaction" perspective de-emphasized the quality of the product since it was already assumed to be of a high degree. Instead, this approach focused on the relationships that needed to be developed during the innovation process in order that the product be accepted by the adopter. These relationships formed between the developer and change agent (often different individuals), between the change agent and opinion leaders, and between the opinion leaders and potential adopters. Each individual played an important role in the innovation process and, consequently, affected other personnel. An action-reaction situation arose and so the direction of communication within the innovation process became two-way, from the developer to the consumer and back again, always

through the change agent and the opinion leader:

D --------> CA --------> OL --------> C.

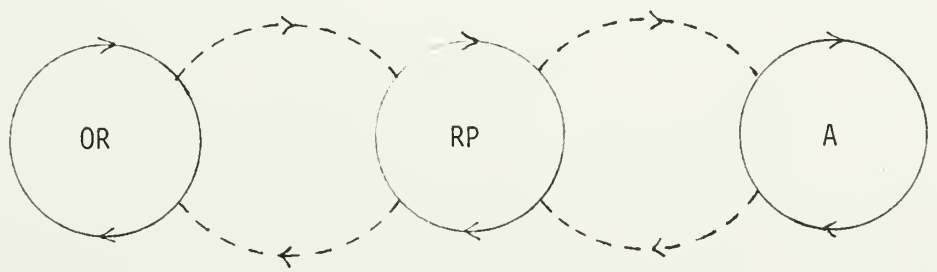
The third perspective, the "Problem Solver," recognized the influence of the quality of the product and the communication channels but emphasized the needs of the consumer or adopter more than the previous two perspectives did. Innovations were not developed first and then delivered to the adopter; rather, the adopter's needs or problems were assessed first and the innovation was researched, developed, evaluated in response to those needs or problems. The change agent's role was to assist the adopter in assessing his/her needs, in identifying resources, and in making his/her own decisions about the innovation. Thus, the innovation process was a cyclical one in which the adopter initiated and carried out the steps of adoption, tapping into the change agent as a temporary resource, facilitator or consultant. The change agent, in turn, responded to the needs of the adopter, rather than to those of the developer (1971, p. II:5-15). A diagram of such communication resembles the following:



While these three perspectives were found to be valid individually for Havelock, he proposed a fourth which synthesized the strengths in each. This he named the "Linkage" model. Basically, it eminated from

the "Problem Solver" perspective but placed less emphasis on the role of the adopter as the initiator of change and innovation. Instead, emphasis was placed on the links between the adopters and their outside resources, including the change agents, developers and material resources. In addition, Havelock proposed this perspective as the basis for mass innovation efforts.

In the "Linkage" perspective, the relationship between the adopter and the change agent (called the resource person) was reciprocal. Both had collaborative roles in initiating the needs assessment, in identifying resources and in evaluating the innovation. The adopter functioned within his/her own problem-solving setting, calling upon the resource person only when necessary. The resource person, therefore, functioned between the adopter and more distant resources seeking information for and giving information to the adopter when called upon. Various linkages formed between the resource person and other resources, thus making communication within the innovation process a series of linked circles (1971, p. II-16) as illustrated below.



Having based this "Linkage" model on a review of the 4,000 studies, Havelock concluded that two areas within the model needed more examination than evidenced in the studies. The first was that of the process of innovation dissemination, and the second was that of the factors influencing utilization. Havelock proposed specific ways of assessing these areas based on how they were defined and evaluated within each of the studies.

For example, he noted that most of the studies focused only on one part of the dissemination process. While this produced massive specialization studies, few with a wholistic approach toward the innovation process evolved. Havelock suggested that dissemination be examined as ". . . a simple formula for communication which can be stated as follows: '<u>who</u> says <u>what</u> to <u>whom</u> by <u>what</u> channel to <u>what</u> effect'" (1971, p. II-21). Future researchers were encouraged by Havelock to examine the various parts of the dissemination process within the context of its totality. Certainly, there are similarities between this approach to innovation research and that of Katz and Rogers to diffusion research.

At the same time, however, Havelock found that across studies, regardless of their specialization, there were common factors influencing utilization. These he categorized as 1) linkage, 2) structure, 3) openness, 4) capacity, 5) reward, 6) proximity, and 7) synergy (1971, p. II-20). "Linkage," as stated before, included collaborative relationships. "Structure" meant the way in which various systems or organizations within the innovation process were ordered--the develop-

er, the change agent, the resource and the adopter systems. How open a system was to change and how it related to other systems were the foci of the "openness" factor. The "capability" of those within the process to find resources, to use them, and to feel self-confidence became a factor. How often and in what form "rewards" were given influenced the innovation process as did the access to or proximity of an innovation. Finally, inherent in all of these were the diversity and number of members or resources within the innovation process--the "synergy" factor (1971, p. II-31). Havelock also added four minor factors: familiarity, primacy (being the first innovation among others), status, and values (1971), p. II-31). Since these factors were found to be common among the studies, he considered them to be worthy of further research.

One would have assumed that the thoroughness and insightfulness of Havelock's work in 1971 would have created an atmosphere of organized stability in innovation research. Not so, for the number of innovation studies indicating diverse findings increased. Such studies included a number of evaluations of innovative educational programs, giving Western educators first-hand data on prominent innovation theories. One such study in 1974 became a landmark in the field of education and will now be discussed as this review of innovation research in the 1970's continues.

Berman and McLaughlin. This was the Rand study of the diffusion of 293 federally funded innovative programs sponsored by the U.S. Office of Education and coordinated by Paul Berman and Milbrey McLaughlin. The study appeared in an eight volume series published between 1974 and

1978. They documented the study's model of educational change, the factors influencing the programs, one process for implementing change, and the actual findings of the projects' evaluations. Berman and McLaughlin took educational innovation research one step further in its history by analyzing existing theories within the context of empirical research. Following is an overview of two of their volumes.

While quick to acknowledge the work of Havelock and other innovation researchers before him, Berman and McLaughlin criticized their emphasis on pre-adoptive behavior, i.e. ". . . the behavior of schools before a decision to adopt is made . . ." (1974, Vol. I, p. 6). They proposed, like Rogers and Shoemaker, that innovation research could not stop at the adoption stage but had to look closely at what occurred after a decision and action to adopt had been taken. Did the innovation continue being adopted and become, therefore, implemented and institutionalized over time? They found that federally funded efforts at diffusing innovations gave little evidence of continued institutionalized change. A model of an innovation process which focused on institutionalization and was accountable to the factors influencing it was, therefore, necessary. Berman and McLaughlin proposed such a model.

Their model was based on the hypothesis that there were ". . . three stages in the life of an innovation project:

*Initiation, when LEA (local education agency) officials plan projects and decide which ones to support.

*Implementation, when the project confronts the institutional setting and project plans must be translated into practice. We hypothesize that effective implementation

> requires mutual adaptation between the project as planned and the institutional setting, in which each must adjust to the demands of the other.
>
> *Incorporation, when the innovative practice looses its 'special project' status and becomes part of the routinized behavior of the district. In this phase a project may be continued in whole or part as a result of deliberate district decision, or aspects of the innovation may be incorporated by individual teachers with or without formal district support (1975, Vol. 5, vii).

These stages recall Paul Mort's adaptability concept referred to previously.

In addition to this three-stage model, Berman and McLaughlin contributed to innovation research by proposing three categories of factors which they found to influence the implementation and institutionalization of their innovative projects. These were: 1) the project or innovation characteristics themselves, 2) the institutional setting into which the innovation was brought, and 3) the federal policies or system demands surrounding the project. Such project characteristics as the type of innovation, the kinds of resources, the model of communication, the decision-making process, the implementation strageties, and the adopter attitudes were all found to be influential. The climate of the institutional setting toward change as seen in administrative and adopter support as well as in the flexibility of the staff to adapt to, rather than ignore, an innovation were considered. And, finally, those federal regulations by which the projects were managed served as factors, although minor and generally restricted to the initiation stage (1975, Vol. 5, p. xi).

To summarize, Berman and McLaughlin applied the theories of pre-

vious researchers to an actual field study of innovative projects. Unlike the previously cited studies, they assessed theories within an empirical research context and found them, in part, to be inappropriate assumptions. Their response was to advocate an approach to innovation research which emphasized the role of adaptation within a three-part model. This model should be kept in mind as this thesis continues its survey of innovation research in the 1970's.

CBAM. Writing at the same time as Berman and McLaughlin and also funded in part by the U.S. Office of Education was a group of educators at the Research and Development Center for Teacher Education at the University of Texas at Austin. From 1973 to the present (but based on research initiated in 1965), Gene Hall, Susan Loucks, Richard Wallace, A. A. George, William Dorsett and William Rutherford with others developed and refined a specialized approach to innovation research entitled the Concerns-Based Adoption Model, hereafter referred to as CBAM. Focusing, like Rogers, on the actual adopter, their model has been widely used for studies of educational innovations in the U.S.A. It also provided some of the research instruments used in the field-based research of this study. Because of its popularity in and relevance to innovation research, the following sections will elaborate on the CBAM theory and research methodology.

Hall, Wallace and Dorsett (1973) claimed that the CBAM was ". . . eclectic. It uses concepts from Linkage as well as processes from the Research, Development and Diffusion Perspective and from the Problem-Solver Perspective" (1973, p. 4). Like the R, D and D model,

it assumed that the innovation was, in and of itself, beneficial and, like the Linkage model, it emphasized the relationships between the external change or resource agency and adopter. However, it did not approach the innovation process from a systems or organizational viewpoint, for it conceived of the individual adopter (and the collection of many individual adopters) as the basic and key factor to adoption.

With this emphasis on the individual adopter, two methods were developed in 1973 by which adopter reactions to innovations could be assessed; one focusing on adopter concerns, the other on adopter behaviors. Much of the study of adopter concerns was credited to research done by Francis Fuller (1969) who hypothesized that student-teachers, when learning how to teach, passed through a series of concern stages. She later summarized these concerns into three categories: concerns about self--"Do I really know what to do?"; concerns about task--"Am I teaching correctly?"; and concerns about impact--"Do I affect my students?" (Fuller, 1974, p. 40). Hall et al. (1973) proposed that teachers confronted with innovations shared these same sequential concerns. The three categories were expanded by the CBAM educators into seven "Stages of Concern" and were extensively field-tested as to their reliability and validity. By 1977, these initial seven were refined and became: awareness, informational, personal, management, consequences, collaboration, and refocusing (Hall, George and Rutherford, 1977, 1st Edition). These stages are defined in detail in Chapter IV.

The adopter's second reaction to an innovation as assessed by CBAM was his/her behavior or usage. Hall et al. hypothesized that as the

concerns for an innovation proceeded through a series, so comparably did one's "Level of Use." Explicitly stated, as familiarity through experience with an innovation increased, so did one's use. Again, after extensive field testing, the CBAM researchers proposed eight "Levels of Use": non-use, orientation, preparation, mechanical use, routine, refinement, integration, and renewal (Hall, Rutherford, and Newlove, 1975). A detailed description of these is also found in Chapter IV.

Recognizing the CBAM's particular focus on the individual adopter's concerns and use, a question arises as to how this model accounted for the systems-oriented view of innovation which included external linkages and organizational or systemic effects. Hall acknowledged the value of this question and responded by stating four assumptions inherent within the CBAM theory. First, innovation adoption was ". . . a process, not an event . . ." (1973, p. 28) and, as such, the adopter moved from one state of adoption to another requiring "internal" and "external" systemic assistance along the way. Secondly, teachers' concerns and use vary--within each teacher and between teachers--necessitating, therefore, an innovation process in which the management of the process was accountable to such variance. Finally, change agencies could better facilitate the total innovation process when they understood these levels and stages of variations. From these assumptions, then, it may be inferred that according to the CBAM, organizations and linkages were considered of secondary importance to the beliefs and actions of individual adopters and that systems must respond to the

adopters rather than stand isolated from them or insensitively control them (1979, pp. 2-3).

Hall continued to respond to, but de-emphasize, the systems approach when he discussed the concept of institutionalization. He stated that the adoption of an innovation by an entire institution still depended solely on the summative actions and concerns of adopters. When a majority of individuals within an organization had resolved their concerns up to and including the Management Stage and were using the innovation as originally defined at a Routine Level, then institutionalization had occurred (Hall, 1979, p. 22). Hall summarized the CBAM's commitment to its adopter-centered approach by saying: "Without a change in individuals, it is not likely that an organization will be able to initiate, maintain or institutionalize change" (1979, p. 3).

These models and researchers of the 1970's discussed so far have been quite specialized in their research of innovation: Rogers and Shoemaker on stages of adoption, innovation decision process and innovation characteristics; Havelock on the linkages within innovation dissemination and utilization; Berman and McLaughlin on the initiation, implementation and continuation stages of innovation adaptation; and Hall et al. on the adopter's concerns and use. More recently, these same researchers have begun to examine an additional aspect of innovation, that of the role of the change agent and his/her strategies of change (Havelock, 1973; Berman and McLaughlin, 1978, Vol. 8). The final researcher to be discussed in this review of innovation research literature of the 1970's continuously focused on this aspect. A brief

summary of his work follows.

Lindquist. Jack Lindquist (1978, 1979), like Havelock, Berman and McLaughlin, acknowledged the three basic approaches to innovation research: Research, Development and Diffusion; Social Interaction; and Problem-Solver. Lindquist added two more, though, upon which he based his theories of change agent strategies.

The first he entitled the "Political" approach in which power was the motivating influence for change (1978, p. 7). Within this approach, Lindquist advocated that the success of the innovation process was often determined by how much ownership individual adopters felt they had of this very process. The change agent, therefore, had to act as a mediator or facilitator of change, being highly skilled in interpersonal relations and conflict resolution. These skills would assist him/her in carrying out the primary task of involving the adopters in their own needs' assessment, their own evaluation and selection of innovations, their own planning of training and implementation procedures, and their won adoption or adaption of the innovation. While performing this task in collaboration with the adopters, the agent had also to assess the resources and constraints affecting the innovation process and to keep communication channels open between all concerned.

In addition to the "Political" model, Lindquist offered another which synthesized his first and those of Havelock, Berman and McLaughlin. This he entitled the "Adaptive" model ". . . because planned change is a local development, . . . one which is stimulated and guided by the adaption of external innovations rather than the invention of new ones"

(1978, p. 223). Lindquist confirmed his commitment to this model in his 1979 publication when he stated:

> Researchers find that they (adopters) adapt rather than adopt existing innovations. The difference between those two little words makes a revolution in thinking about how to increase the impact of model programs (1979, introduction).

Based on this model, Lindquist and Havelock joined in 1979 to propose seven functions or strategies that change agents could follow:

Function 1: Arousal and Articulation of Audience Needs
Function 2: Communicating Needs to the Research and Development Community
Function 3: Designing with Audience the Relevant Research Development
Function 4: Scientific Problem-Solving in which Change Agents and Adopters Utilize Research Findings to Solve Needs
Function 5: Development of Models for Practical Use Involving Adopters
Function 6: Dissemination of New Models
Function 7: Insuring the Use of Dissemination Models by Increased Ownership on Part of Adopters and Adaptation on Innovation
Function 8: Adopter Problem-Solving in which Change Agent Ceases to Facilitate while Adopters do (1979, pp. 8-16).

Such an emphasis on power and the change agent's role in the innovation process has influenced current research designs on innovation as well as implementation strategies particularly in developing countries where the change process is so emersed in confrontations between traditions and new ideas, between individuals of different cultures, and between the empowered and the powerless.

Summary of research on innovations during 1960-1980. This second section of the chapter has attempted to review various theories and models of innovation representative of those prominent from 1960 to 1980.

It is obvious that there are many and that they are diverse in their foci. The semantics of their specializations which often create their distinctiveness from each other should not, however, conceal their basic similarities. All view innovation as an idea or product perceived as new to adopters. And, an adopter is always an adopter. Where the language bewilders is in describing the innovation process itself, and clarity may be assisted in both summarizing and comparing briefly these theories and their models.

First, each recognized that the acceptance of an innovation took time. As Hall said, it was ". . . a process, not an event . . ." (1973, p. 28). Within that process, however, some of our researchers either agreed or disagreed depending on which of its three parts they focused: adopting, implementation or institutionalization. Rogers (1969), Katz, Miles and Hall focused on adoption; Rogers and Shoemaker (1971), Havelock, Berman and McLaughlin, and Lindquist on implementation; and none, actually, on institutionalization.

In their focus on adoption, Rogers, Katz, Miles and Hall all recognized that adopters progressed through various stages in deciding about innovations. Rogers (1969) proposed five: awareness, interest, evaluation, trial, and adoption. Hall suggested that there were two separate yet parallel stages: seven concerns and eight levels of use. In contrast, Katz and Miles emphasized the diffusion process which they felt influenced whether or not an innovation was adopted. Both questioned the influence of interpersonal channels of communication, the characteristics of an innovation, and the actual culture or social

system of the adopters.

Regarding the implementation of an innovation, Rogers and Shoemaker (1971), Havelock, Berman and McLaughlin, and Lindquist based their views on a process of decision-making. Each focused on the communication channels and the social system environment which he felt influenced that decision-making. Rogers and Shoemaker proposed two separate lines of communication; one going from the innovation developer to the change agent, the other going from the change agent to the adopter. Havelock saw communication between the adopter and change agent as two-way linkages and, likewise, between the change agent and resource systems. Berman and McLaughlin paralleled Lindquist in their view that innovation implementation was determined by the ability of the change agent and adopters to respect each other, to function well within politically determined situations, and to accept that innovations may be adapted rather than adopted. This summary demonstrates both the diversity and similarity within the area of innovation research and suggests that a comprehensive theory and model is timely.

A Comprehensive Model: The Wholistic Approach

Having now been bombarded with the numerous theories, concepts, models and approaches dominating innovation research from 1960 to 1980, how can and why should one more be proposed? Shouldn't the field of innovation research continue its diverse paths so that the differences among theories may become more distinct, measurable, and then proven or disgarded? That, certainly, would assist in refining research on inno-

vation. In the meantime, however, innovations would continue to fail without a theory and method by which educational researchers and planners could assess simultaneously all the aspects of the innovation process which influence that failure. Such a total approach is sorely missing from current innovation research. The final section of this chapter which now follows is this researcher's attempt at developing just such a theory and model.

The Wholistic Model. In wholistic medicine, the health of an individual depends upon the ability of each body part to work successfully, independent from yet in collaboration with other body parts. In order that an innovation is successful in being adopted and institutionalized, each aspect or part within the innovation process must be "healthy," in and of itself and in collaboration with the other parts. Over and over again, the forementioned innovation researchers have stressed the importance of their own foci but have also admitted, after the fact, that other foci need to be considered. The model now suggested accounts for all the major parts within the innovation process and is entitled the Wholistic Innovation Model. The model is the cornerstone of this thesis' conceptual and practical approach used in the present study of innovation.

Background. Based generally on the works of those researchers previously reviewed and supported specifically by the current work of William Wolf (1979), the Wholistic model views innovation as a process over time which is influenced, if not determined, by the "health" of four,

interdependent parts within the process: the innovation itself, the adopter, the innovation process strategies, and the social system environment. If any one of these is not supporting the innovation's progress but rather is inhibiting it, then the likelihood of an institutionalized innovation is minimal.

This model therefore, proposes innovation research which examines simultaneously and cooperatively each of these four parts. While looking at what the innovation characteristics are, a researcher should also be examining how an adopter is reacting to them. Does the innovation have characteristics which enable it to be accepted by the adopter, to be supported by the social system, and to be implemented appropriately through change strategies? Does the adopter have characteristics which enable him/her to be receptive to the innovation, to be amenable to the change strategies, and to be supported by the social system? What has the change agent and his/her strategies done to prepare, train, and assist the adopter; to evalute the innovation itself; and to recognize the constraints and resources within the social system? And, finally, what has the social system (institutionally or culturally) provided to the adopter and change agent as support during the innovation initiation, implementation and institutionalization phases? Many more questions may be asked about each of these elements to demonstrate their interrelatedness and the significance of a Wholistic model which accounts for that interdependency. Figure 3 presents a graphic depiction of the model including each part and the lines interrelating it to others.

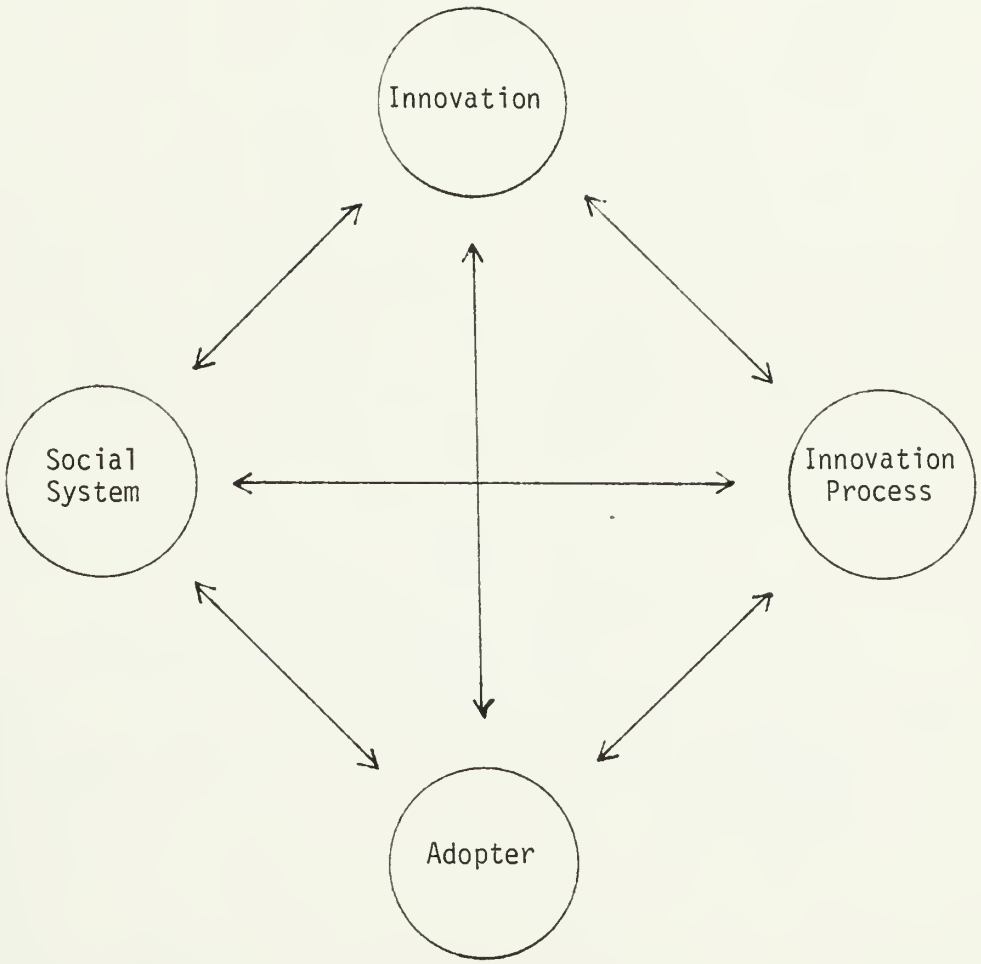


Figure 3. The Wholistic Model

It is evident that the findings of those innovation researchers cited in this review have influenced the elements in this model. For example, Rogers studied the various characteristics of the innovation which influenced the innovation process as well as the adopter categories and stages. Hall focused, too, on the adopter, his/her concerns and levels of use, and the characteristics of innovations. Havelock and Lindquist examined at length the strategies of change agents while Lindquist and Berman and McLaughlin focused on the social system within which those change agents worked.

In addition, though, another researcher, William Wolf, assisted in the formation of the Wholistic model by confirming the validity of a need for a comprehensive approach. He had reacted to previous research on innovation by stating:

> Social change theory is more hope than substance. Even though scholars have saturated social science archives with change theories, models, and configurations, which are supposed to have predictive utility, none survive practical applications. Neither the speculative and amorphous grand theories of social change nor the quasi-experimental contemporary theories of social change provide the kinds of blueprints needed by persons who are involved with change enterprise (1981, p. 4).

Wolf proposed a configuration which included ". . . the important ingredients needed to successfully expedite diffusion/utilization tasks" (1981, p. 15). This configuration consisted of three parts: classes of variables, classes of processes, and outcomes (as shown in Figure 4) (1981, p. 18).

Wolf's differentiation between the characteristics of the linkage

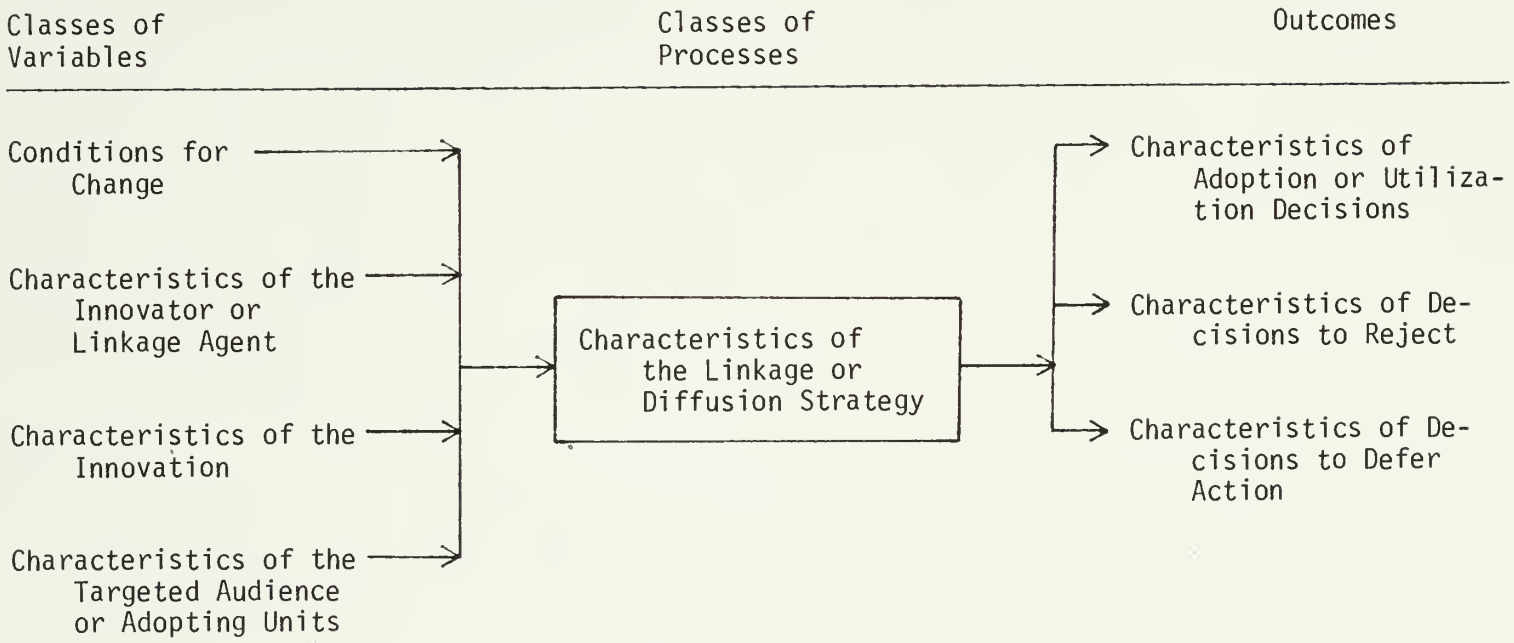


Figure 4. Variables and Processes Related to Knowledge Diffusion/Utilization Phenomena

agent and the linkage strategy did not seem appropriate to this researcher. To draw a line between an individual's thoughts or personality and his/her actions seemed impossible. Since the change agent is often seen as representative of the resource systems and developer system which promote the innovation, again, the agent and change strategies cannot be so easily separated. In the Wholistic Model, the two classes were joined, causing the linkage or change strategies to become variables rather than processes. Finally, considering the setting of innovations, particularly in developing countries, the conditions for change are often manifest in the social system within which the innovation is being promoted. For this reason, the variable entitled "conditions for change" became the Wholistic element of "social system." In this way, a modified version of Wolf's configuration assisted in the refinement of the Wholistic Innovation Model approach to innovation research used in this study.

In the next chapter, the Wholistic Model will be applied to the research design used in the field study of this thesis.

C H A P T E R III

THE DESIGN OF THE FIELD STUDY

Based on the previous chapter's survey of literature on current teacher training innovations in developing countries and on innovation research, this chapter presents the design of the present investigation. As an exploratory study based on the two research questions proposed in Chapter I, a case study format was used to investigate one innovation at a teacher training institution of a developing country. This chapter discusses 1) site, innovation and data source selection, 2) the researcher's role, 3) research instruments, and 4) data collection and methods of analysis.

Site, Innovation and Data Source Selection

Site. The site chosen for this study was the National Teacher Training College of Lesotho, located in Maseru the capital of Lesotho, Southern Africa. Founded in 1975 through a joint effort between the government of Lesotho and various international donor agencies, N.T.T.C. initially was committed to using both traditional and innovative teaching practices. In the college's 1981 brochure, this commitment was reconfirmed.

> As a teacher training college in a developing country, the N.T.T.C. cannot afford to be extravagant or irrelevant . . . the college employs many time-tested methods of teacher education as well as newer methodological innovations adapted to the college's program. A wealth of personnel resources and physical resources have [sic] been gathered to engage in projects and experiments designed to improve current and future educational thought and practice in Lesotho (1981, p. 3).

N.T.T.C.'s inception was also committed to ensuring ". . . national unity and centralization in the sphere of education and elsewhere" (2D, p. 1), for it replaced the seven, former teacher training institutions sponsored by Lesotho's three national religions: Roman Catholic, Lesotho Evangelical, and Anglican.

Since 1975, N.T.T.C. had grown from an original staff of 16 to one of 65: 61 lecturers and 4 administrators (2 of whom administered the In-Service and Internship programs respectively). The original student population had increased from 79 to approximately 1,450: 1,025 in the pre-service program which offered Primary, Advanced Primary and Secondary certificates and 425 in the in-service program which offered seven professional certificates to teachers already in the field.

Because Lesotho was a developing country, because its National Teacher Training College demonstrated an historical and current commitment to innovations, and because the Ministry of Education and College administrators agreed to participate in this research, N.T.T.C. was seen as an appropriate case-study site.

Choice of innovation. From an initial survey of N.T.T.C.'s historical documents read by the researcher before arriving at the site, it was evident that a number of innovations were on record. These included a three-part classroom teaching structure (1-one hour lecture, 1-two hour discussion, and 1-two hour per subject practicum per week), micro-teaching, self-instructional materials, an internship year, subject area kits, a learning fair, continuous assessment evaluations, and a

test-item bank.

After arriving at N.T.T.C., interviewing faculty and administrators, and reviewing more documents, this researcher chose one of these innovations based upon the fact that it was given a common definition by interviewees, its visibility within the institution, and its recognition by N.T.T.C. staff and documents as an "innovation." Self-instructional materials (SIMs) met these three criteria and were, subseqeuntly, chosen as the innovation upon which the case study would focus. A sample SIM published at N.T.T.C. is found in Appendix A, and a sample of those topics covered by SIMs and available at the time of the study is included as part of the SIMs Report Sheet in Appendix B.

Subjects and sources. To identify the subjects and sources in this design, the researcher referred to the four elements of the Wholistic Model presented in Chapter II: the innovation, adopter, innovation process, and social system. These provided the criteria by which subjects and sources were then selected. (Table 1 categorizes the various sources, instruments and analyses guides used in designing this study and, as such, may be helpful reference to the reader in pursuing the rest of this chapter.)

Since the lecturers of N.T.T.C. were the adopters of the innovation, all were identified as subjects. Denzin refers to this method of sampling as the "saturation sample" (Denzin, 1970, p. 94). As representative of the social system, 4 of the 6 administrators of N.T.T.C were chosen in addition to several members of the Board of Governors

TABLE 1

Composite of Sources, Methods/Instruments and Analyses Guides for the Two Research Questions

Sources	Instruments/Methods	Analyses Guides
1. What is the institutionalization level of SIMs at N.T.T.C?		
		Indicators of Institutionalization:
57 Faculty	LoU Interview Configuration Pattern Checklist	Level of Use
57 Faculty	SoC Questionnaire	Concerns
3 IMRC Staff 3 Administrators 3 Board of Governors' Members 1 Ministry Representative	Social System Support Checklist/Interview SoC Questionnaire	Social System Support
Documents of 1981-1982	Documentary Review	Social System Support
2. What are the factors influencing the institutionalization level of SIMs at N.T.T.C.?		
		Sensitizing Concepts
57 Faculty	LoU Interview SoC Questionnaire Factors Interview	Adopter Characteristics
4 Administrators 5 Board of Governors' Members 1 Ministry Representative 3 IMRC Staff	Social System Support Interview	Social System Support
2 Change Agents 11 Original Adopters/Devel. 1 Permanent Secretary 5 Board of Governors' Members 4 Administrators 4 IMRC Staff	Historical Interview/ Questionnaire	Innovation Process
300 Third-Year N.T.T.C. Students	Student Questionnaire	Innovation Characteristics
199 SIMs	SIMs Report Sheet	
44 Sets of Documents	Documentary Review	Innovation Characteristics Innovation Process Social System Support Adopter

for N.T.T.C., one representative of the Ministry of Education, and all of the Instructional Materials Resource Center (I.M.R.C.) editorial staff. Three-hundred of the third-year students were chosen to supplement data from the lecturers.

Original change agents and developers, no longer at N.T.T.C. nor living in Lesotho, were chosen and contacted via correspondence. However, various original adopters were still resident and were identified to provide data on the initial change strategies by which the innovation was introduced and implemented. Finally, documents including memos, reports and minutes from faculty, department and committee meetings dating from 1972 to the spring of 1982 provided extensive data on both research questions. A list of these documents may be found in Appendix C. Appendix D summarizes in detail the number and type of sources.

It must be noted that there was a discrepency between identified and utilized subjects due to the reaction by some individuals when asked to participate in this study. Two of the sources identified originally as lecturers considered themselves as administrators of special programs: one of the Internship Program and the other of the In-Service Program. They did not feel, therefore, that they could comment on their own level of use of SIMs but, instead, on factors influencing others' use. A third lecturer refused to be interviewed. A fourth stated that, as an audio-visual technician outside of the classroom, he did not interact at all with SIMs.

It also must be stated as concluding remarks on the selection of

subjects and sources that while they were chosen according to their relation to one particular category within the Wholistic Model, the data which they contributed spanned all categories. In addition, it became evident that two distinct subject populations had emerged: lecturer and non-lecturer. The former included the faculty of N.T.T.C. who represented the adopter category; the latter included administrators, Ministry representatives, I.M.R.C. staff, original change agents and adopters who represented the innovation process and social system categories. The terms lecturer and non-lecturer will be used extensively in the rest of this thesis.

Researcher Role

The researcher role chosen for this study was based on the works of M. Q. Patton (1980) and Norman Denzin (1970). They described four roles: complete participant, participation as observer, observer as participant, and complete observer. Each was dependent upon the degree of membership and overtness a researcher adopted during the data collection process.

This researcher decided to take on the third role of observer as participant in which she announced her role as observer and participated in the institution as a volunteer within one academic department. This role gave the researcher direct access not only to the documentary resources within the college but also to the personal experiences of those individuals confronted with the innovation. It also gave her a sense of credibility in the eyes of the institutional members, for she

was considered as one of the lecturers, not as a researcher. Finally, this role assisted the researcher in experiencing for herself, some of the external and internal forces at the college which were affecting the workload and morale of the lecturers.

Instruments

Based on the innovation research described in Chapter II, various instruments were chosen to identify, first, the institutionalization level of SIMs and, secondly, the factors influencing that level. This study drew heavily from the CBAM research of Hall et al. (1973, 1977, 1979) and from the qualitative research of Patton (1980) and Denzin (1970). Following are the identification, description and sample copies of those instruments.

Indicators of institutionalization. In order to identify the instruments appropriate to this study, measurable indicators of institutionalization first were defined. Research within the Concerns Based Adoption Model (CBAM) offered three such indicators: 1) the resolution of certain concerns on the part of the user, 2) the acquisition of a particular level of use of the innovation, and 3) use at that level of an acceptable configuration of the innovation (Hall, 1979, p. 22). While these indicators accounted for the Wholistic Model elements of innovation, adopter and innovation process, they did not account for the social system element. Thus, a fourth indicator was added to the definition of institutionalization in the form of social system support. The

instruments described next were chosen or designed to assess these indicators.

Stages of concern questionnaire. The Stages of Concern (SoC) Questionnaire used in this field study was based, theoretically, on research by Francis Fuller (1969, 1974) regarding teachers' concerns and, practically, on the innovation studies of CBAM researchers Hall, Wallace and Dorsett (1973). In 1974, an initial questionnaire of 195 items was pilot-tested, and the present 35 item questionnaire was finalized shortly thereafter (Hall, George, Rutherford, 1979).

This questionnaire was designed to elicit responses from teachers as to their concerns about a particular innovation. Given a short statement of concern, respondents were to identify on a Likert scale how true the statement was for them. A copy of the Stages of Concern Questionnaire may be found in Appendix E-1. The definition of each stage is found in Chapter IV within the analysis discussion.

Reliability and validity of this instrument have been tested by the CBAM researchers. In the Fall of 1974, a test of 830 individuals and a retest of 132 of these 830 demonstrated correlations ranging from .65 on Stage 0 to .86 on Stage 1 (Hall, George, Rutherford, 1979, p. 11). The validity of the questionnaire as to whether or not it identified specific and separate stages was difficult to measure since there were no other measures of concern with which it could be compared. However, interviews with judges and self-report questionnaires produced data which was then compared with data from the SoC Question-

naire. Significant correlations were found for Stages 1, 3, 4 and 6 and non-significant but high correlations for Stages 0, 2 and 5 (Hall, George, Rutherford, 1979, p. 15).

Levels of use interview. The Levels of Use (LoU) Interview also developed from research completed by the CBAM educators (Loucks, Newlove, Hall, 1975). Its intent was to determine the level of use at which a respondent was currently functioning in regard to an innovation. By asking one of three sets of branching questions determined by an interviewee's initial responses, a researcher could collect data on the use, non-use or former use of respondents. An overview of this branching format is found in Appendix E-2 and a sample interview is found in Appendix E-3.

The reliability and validity of this instrument was also tested by the CBAM researchers when they ". . . conducted more than 3,000 interviews with twelve different innovations" (Hall, 1979, p. 6). Inter-rater reliability resulted in coefficients ranging from .87 to .96, and a two-year validity study ". . . resulted in correlations of .98 between ratings . . ." given by the LoU raters and by ethnographers who had spent time observing those individuals interviewed on the LoU (Hall, 1979, p. 7; Hall and Loucks, 1977, p. 5).

Configuration pattern checklist. The Configuration Pattern Checklist was used in order to determine if, indeed, the innovation in question (SIMs) currently contained the same components or characteristics as had been originally designed. Based on the CBAM recommendation that

both developers and present users of the innovation be questioned about the original components, the SIMs Checklist was developed only after the investigator had contacted those individuals and had conducted a thorough historical documentary review. Appendix E-4 displays the Configuration Pattern Checklist developed for this field study.

Social system support checklist. Having defined social system support as the financial, personnel, material, training and personal support provided for SIMs by the social system, a checklist was developed to guide the investigator in collecting data from interviews, questionnaires conducted through correspondence, and documents reviewed. This checklist listed key indicators of financial, personnel, etc., commitment upon which sources would comment. A copy of the checklist is found in Appendix E-5.

Supporting instruments. Because all of the previous instruments were self-reporting ones, two additional instruments were employed for cross-checking purposes: a Student Questionnaire and a SIMs Report Sheet.

The Student Questionnaire was designed to determine in which subjects, how often and when students of lecturers at N.T.T.C. stated they had been taught through SIMs. In order to be clear that the term SIMs was understood by the students, the Questionnaire first asked them to define it. Appendix E-6 contains this questionnaire.

The SIMs Report Sheet was a table itemizing the various sections originally proposed for inclusion in SIMs themselves and the number of copies of each SIM available at the time of this study. Also included

were items on the dates of publication, revision and pre-testing. A copy of the Report Sheet is found in Appendix B.

Factors influencing institutionalization. In order to measure the factors influencing the institutionalization level of SIMs, three instruments were developed based upon qualitative research methods. These three were: the Factors Interview, the Historical Interview/Questionnaire, and the Documentary Checklist. Following is a description of each.

Factors interview. As advocated by M. Q. Patton (1980, pp. 203-207), qualitative research is designed to understand social phenomena and not to predict it. The Factors Interview was designed by this investigator accordingly. The format reflected Norman Denzin's work on qualitative interviewing in which a combination of standard and non-standard questions was recommended (Denzin, 1970, pp. 123-138).

The Factors Interview, therefore, included 12 standard questions and various non-standard questions which were asked as probes. The first three standard questions were designed according to the "phenomenological" approach of interviewing promoted by Earl Sideman and David Shuman (Sideman, 1982; Shuman, 1983). These open-ended questions intended to assist the interviewee in relating his/her subjective experiences with the innovation (Sideman, 1982, p. 2) from which implied factors could then be identified. The probing, non-standard questions arose when responses to the standard questions were not clear or afforded elaboration.

The nine standard questions which followed these first three focused on explicit factors influencing the respondent's use or non-use of SIMs. Beginning with one open-ended question about what the respondents felt influenced their use, the interview continued with seven, closed-ended questions requiring a "yes" or "no" response as to the influence of seven specific factors. The final question again asked for the respondent's general, open-ended opinion on any factors not yet mentioned. Appendix E-7 presents the twelve standard questions on the Factors Interview.

The historical interview/questionnaire. The Historical Interview/Questionnaire was designed to elicit data on the original plans, development, implementation and evaluation of the innovation. Three standard questions were asked and, according to subject responses additional probing questions were interspersed. These three standard questions and examples of commonly asked non-standard probes may be found in Appendix E-8.

Supporting instruments. It was found, as the research progressed, that the Stages of Concern Questionnaire, the Levels of Use Interview and the Social System Support Interviews also provided data on the factors influencing the institutionalization level of SIMs. Documentary reviews also played a prominent role in collecting data on factors, but no instrument per se was developed. The researcher relied, instead, on the Social System Support Checklist and the standard questions in the Historical Interview/Questionnaire as guides for data collection.

Data Collection Methods

Each of the forementioned instruments was used by the researcher in collecting data from sources identified in Table 1. Following is a description of how those instruments were specifically used within the larger context of conducting research at N.T.T.C. Again, reference to Table 1 may assist the reader.

The methods of data collection described in this section are intentionally numerous and diverse. Norman Denzin (1970) stated in his study of data collection methods that a "triangulation" of methods assisted in verifying and embellishing data analyses. The more diverse the methods and sources, the more reliable and valid the data would be. Due to the fact that this study was exploratory and that the intent was to see through the eyes of the informants, this researcher faithfully used the triangulation approach in her methods of data collection.

Entry and innovation selection. Upon arrival at the site, this researcher began her entry by being introduced to the college administrators and faculty within the department to which she was assigned as a guest lecturer. A memo from the Director's office was sent to all staff, announcing her purpose and requesting full cooperation.

Entry continued for the first month as the researcher introduced herself to other lecturers, perused departmental and committee reports, and taught classes. Various, and numerous, casual conversations in conjunction with documentary reviews focused her investigation of N.T.T.C. innovations on two: experiential learning within the practicum sessions

of weekly classes and self-instructional materials (SIMs). For the reasons stated in the previous section, SIMs were chosen for this study.

Configuration pattern identification. Having chosen SIMs, the researcher then began to investigate them so that a Configuration Pattern Checklist could be constructed. This Checklist (as described in the previous section) was developed by following a "configuration pattern" identification method advocated by CBAM research. The method included the following steps:

1. Ask developer and facilitators (that is, the initial change agents and implementers) for essential innovation components;
2. Interview and/or observe a small number of users;
3. Develop interview questions; interview a large number of users;
4. Construct a checklist and complete for each user;
5. Analyze checklist data to identify dominant configurations (Hall and Loucks, 1978, p. 24).

The researcher combined steps one and two and depended heavily on documentary resources since many of the original change agents and developers were no longer living in Lesotho. The checklist components were initially cited from the documents, then verified through interviews with initial adopters and, finally, confirmed by the responses of four original change agents and developers to questions on a questionnaire designed from the Configuration Checklist.

Adopter data collection. Having completed the entry, identified SIMs as the innovation to be examined, and constructed the SIMs Configuration Pattern Checklist, the researcher proceeded to ask N.T.T.C. faculty and administrators about their willingness to participate in this study. The purpose of the study and source anonymity were explained. Upon agreement by the subjects, interview schedules were set up alloting approximately an hour per interview per respondent.

Each of the 59 lecturers (two of whom were reclassified as administrators after their interviews) was treated similarly by the researcher in being given the same three sets of data collection instruments: the Level of Use Interview in combination with the Configuration Pattern Checklist, the Factors Interview, and the Stages of Concern Questionnaire. Within the alloted hour, the researcher began by explaining the purpose of the interview, the informant's anonymity and the basic procedure for each instrument. Each informant was then asked if he/she were currently using SIMs in his/her classroom teaching. If the answer was "yes," the Configuration Pattern Checklist was employed to assure an accurate definition and appropriate use of SIMs. Following this, the Level of Use Interview, the Factors Interview and the Stages of Concern Questionnaire were conducted. All of the lecturerers gave permission for the taping of their interviews.

Social system support-innovation process. In addition to interviewing the N.T.T.C. lecturers on their concerns about the use of SIMs, this researcher individually interviewed non-lecturers: the administrators

of N.T.T.C., representative members of the College's Board of Governors, the Permanent Secretary of the Ministry of Education, and IMRC editorial staff by using the Social System Support Checklist guide, the Stages of Concern Questionnaire, and the Historical Interview. During these interviews, responses were recorded simultaneously by the researcher. Each interview took approximately one hour.

Seven original adopters were also interviewed using the Historical Interview. This interview subsequently was written in a questionnaire format and sent to those original change agents and developers who had left Lesotho. All of the five responded with completed questionnaires.

Innovation data collection. Each of the methods already mentioned in this section was used to collect data on SIMs (their strengths, weaknesses, usage and history) from sources other than SIMs themselves. One additional method, however, was employed to collect data directly from the SIMs as to their design and content. This entailed a completion of the SIMs Report Sheet for each SIM.

Throughout the data collection period, the researcher would spend time in N.T.T.C.'s library, reading each of the available SIMs and checking off on the Report Sheet how many copies of each SIM were available and which of the originally planned components were evident within each. The researcher also read SIMs which had been published but were missing from the library shelves and were stored in the archives of the IMRC. These, too, were assessed according to the SIMs Report Sheet.

Supporting data collection methods.

Documents. From the first day at the field site the researcher was continuously engaged in a review of the numerous documents present within the N.T.T.C. archives. Guided by the Social System Support Checklist and the Historical Interview questions, she kept a field note file of all documents reviewed or obtained in the original.

Third year students. Toward the end of the field-site visit, the researcher requested permission from the department chairperson with whom she was working to give a questionnaire to all Third Year students. Permission was granted and during a lecture at which 300 of the 310 students were present, the Student Questionnaire was completed.

Data Analysis

Two general types of data analysis were conducted in this study: quantitative and qualitative. Quantitative measures were employed on most of the data identifying the institutionalization level of SIMs, whereas qualitative measures were used on data indicating factors influencing that level. The following discussion is divided, therefore, into two sections; one on the institutionalization analysis and one on the analysis of factors.

Institutionalization level. Data collected from three instruments were analyzed in order to identify the institutionalization level of SIMs. Since institutionalization in this study was defined by the concerns, use and social system support demonstrated by numerous data sources,

these three instruments were the Stages of Concern Questionnaire, the Levels of Use Interview which included the Configuration Pattern Checklist, and the Social System Support Checklist/Interview. A description of how data from each of these instruments were analyzed now follows.

Stages of concern. A "Quick Scoring Device" (Hall, George, Rutherford, 1979, p. 115) developed by CBAM researchers for the SoC questionnaire enabled this researcher to compute 1) a raw score based on each respondent's answers to the 35 items, 2) a raw score for each of the Stages 0-6, and 3) an SoC profile for each respondent. Appendix E-9 displays a copy of this device.

For interpreting the Stages of Concern profiles, the CBAM literature suggested four steps:

1. Establish a Wholistic Perspective
2. Look at High and Low Stage Scores
3. Look at Individual Item Responses
4. Look at the Total Score (Hall, George, and Rutherford, 1979, p. 53).

As the CBAM suggested, this researcher completed the SoC profile on each informant, identified the primary concern stages for each, and, then, combined the total number of primary concern stages for all respondents. Once the total number was determined the Stage or Stages of Concern held by a majority of respondents was considered representative of the whole. A conclusion could then be made as to how many sources indicated concerns beyond the management or institutionalized stage. A second analysis was conducted to compare lecturer and non-lecturer concerns, and a third was completed to compare concerns of users, non-users and former users.

Level of use. The analysis of the data collected in the Level of Use Interview was facilitated by the Level of Use Rating Sheet found in Appendix E-10. Quotes from an interview were assigned to a particular level and category according to the compatibility between their content and the definition of that level and category. The number of quotes per level was computed, and a composite level rating was assigned to each respondent. The total number of respondents per level was then determined, and a conclusion drawn about the number of lecturers at an institutionalized level. Since this researcher was not certified by CBAM to use the Levels of Use Interview nor to complete its data analysis, she contracted with a certified CBAM consultant to verify her data analysis results.

The major part of the analysis, however, focused not on the seven levels but rather on how those levels fit into a use/non-use dichotomy. Thus, the analysis continued by dividing the number of respondents into two groups: those at Levels 0, 1, 2, or 6 indicating non-use, and those at Levels 3, 4, or 5 indicating use.

Social system support. Data concerning the financial, personnel, material, training and personal support were analyzed qualitatively except for the Stages of Concern Questionnaire data (described above). Documents, interviews and other questionnaires were codified for statements providing data on any of these five indicators. In some cases, the response of "yes" or "no" sufficed. In other cases, the lack of data--as in current budget line items within financial budgets--served as data. All data were codified and recorded on a copy of the Social

System Support Checklist and each indicator was, then, rated as high, medium or low in support. Finally, all were combined to identify a summative social system support rating of high, medium or low.

Analysis of the overall institutionalization level. Based on the three analyses described previously of data collected from the Stages of Concern Questionnaire, the Levels of Use Interview including the Configuration Pattern Checklist, and the Social System Support Checklist, an overall institutionalization level was determined. This was done, in part, according to the CBAM definition of institutionalization which stated that a majority of concerns at levels up to and including management must be resolved and that a majority of lecturers must be using SIMs according to the Configuration Pattern Checklist at the routine level (Hall, 1979, p. 22). Since this designation of institutionalization at only one level appeared narrow to this researcher, it was expanded to include the mechanical, refinement and integration levels as well. In addition, the summative rating of social system support was considered.

Finally, the three analyses were combined to identify a high, medium or low overall institutionalization level of SIMs. Simply stated, if all three were high, SIMs would be a high institutionalization level; if only two, SIMs would be at a medium level; if one or none, then a low level.

Factors analysis. In analyzing the data of factors influencing the institutionalization level of SIMs collected from the various interviews,

questionnaires and document reviews, this researcher continued her commitment to understanding rather than predicting data results by relying heavily upon Norman Denzin's (1970) sensitizing concepts approach and M. Q. Patton's (1980) inductive analysis approach to qualitative research analysis. A brief description of each now follows.

According to Denzin, sensitizing concepts guide a qualitative researcher both in selecting resources and methods and in analyzing data collected. He provided an example of a sensitizing concept when he wrote:

> . . . if I offer an operational definition for 'intelligence', I might state that intelligence is the score received on an I.Q. test. But if I choose a sensitizing approach to measuring intelligence, I will leave it non-operationalized until I enter the field and learn the processes representing it and the specific meanings attached to it by the persons observed (Denzin, 1970, p. 14).

This study's initial data analysis of factors influencing the institutionalization level of SIMs was guided by four sensitizing concepts identified as the four elements within the Wholistic Model of Innovation. These elements were: the innovation, the adopter, the innovation process and the social system.

In addition, at the same time that the data was being analyzed according to these four sensitizing concepts, Patton's inductive analysis approach was being used to conduct a "dialogue" between the sensitizing concepts and the data. Patton stated that:

> Inductive analysis means that patterns, themes and categories of analysis come from the data; they emerge out of the data rather than being imposed on them prior to data collection and analysis. The analyst looks for natural variation in the data (Patton, 1980, p. 36).

In applying these two research approaches to this study, the analysis began with the reading of each transcript or document and the circling of both explicit and implicit factor statements. Explicit factor statements were those cited in direct response to specific factor-oriented questions or as direct quotes on factors within documents. Implicit factor statements were those in response to general interview or questionnaire items such as on the interviewee's experience with SIMs. Each factor was then coded and recorded on a Factors Checklist under one of the four sensitizing concepts categories.

During this coding, recording and categorizing process, however, the dialogue between sensitizing concepts and coded data continued, allowing for new categories of factors to evolve when necessary. The researcher was constantly looking for what Guba labeled as "internal homogeneity" (similarity within categories) and "external heterogeneity" (differences between categories) (Patton, 1980, p. 314).

Once all of the data were coded and recorded, the number of data pieces within each category was tabulated and the content of the data within each was summarized into a category title. Sample data for each category were selected to illustrate that summary, and critical factors (to be defined in Chapter IV) were identified.

Conclusion

In conclusion, Table 1 again assists in summarizing this chapter's discussion of the sources, methods, instruments, indicators and sensitizing concepts employed in the design of this field study. As stated

in a previous section, the variety of sources, methods and instruments was intentional in order to provide the richest variety of manageable data possible.

Having now presented this thesis' research questions, the review of literature, and the research design for the field study, Chapter IV will discuss in detail and provide examples of the data analyses results. Respecting the intent of this study to be an exploratory one which examined an innovation through the "eyes" of recipients, Chapter IV is an analysis of data from those at the National Teacher Training College of Lesotho who have journeyed with SIMs.

C H A P T E R IV

DATA ANALYSIS

This chapter presents the analysis of data collected to assess: 1) the level of institutionalization of SIMs at N.T.T.C. and 2) the factors influencing that level. Founded upon the Wholistic Model of innovation research proposed in Chapter II and III, this analysis approaches the evaluation of SIMs from a systemic perspective. Thus, it accounts for the inherent characteristics of SIMs as well as for the process by which SIMs were introduced into an environment and reportedly sustained. In order to assist the reader in capturing this wholistic sense of SIMs, the analysis is divided into three parts.

First, a history of SIMs from 1974 to 1982 is presented, relying extensively on data from reviewed documents and relevant interview and questionnaire responses. This history provides a contextual background for understanding both the present institutionalization level of SIMs and factors influencing that level. The second part of the chapter identifies the institutionalization level of SIMs as of 1982 by discussing data for each of the use, concern and social system support indicators. The third section presents a quantitative and qualitative analysis of the factors influencing the current status of SIMs.

It must be noted that within the historical review of SIMs several factors may become apparent immediately to the reader. It is this researcher's suggestion that the reader refrain from considering these as valid factors until they are confirmed in the final section of the

chapter. The reader will also note that various types of sources are indicated within the text by certain markers: D = Documents, L = Lecturer, NL = Non-Lecturer. The letters or numbers after these markers designate the individual source within each type. Also, the dates of faculty meeting minutes are cited following the marker D1.

History of SIMs

1974. The stage had been set for the introduction of innovations to N.T.T.C. long before the college opened its doors in April of 1975. As stated in a 1974 planning document on the development of the college (D3), "Since the key person in any process of internal reform or adaptation of an educational system is the teacher; teacher training would seem to be the logical focal point for change." In order to assure that N.T.T.C.'s program would reflect that change, this same document recommended that 1) the curriculum be "suited to new methods and syllabi," 2) on-campus workshops be conducted in "new educational concepts and methodologies," and 3) that "A familiarity with modern methods of teaching and new concepts in education is mandatory" as a qualification of the First Chief Technical Adviser. By September of 1974, one of these recommendations had been met in the hiring of a CTA with extensive experience in innovations.

1975. Between his arrival and the opening of the College, this CTA met with numerous officials from the Basotho government and representatives of international donor agencies to secure the school's location and

staff. Not until 6 weeks before the college opened in April were national and international staff, excluding the national Director, appointed (D27). As the CTA, himself, stated in a report on the first year of N.T.T.C.:

> In March, 1975, the N.T.T.C. was still only a promise to the people of Lesotho. The opening of the College was planned for the following month. But in March 1975 there was no director for the College, there was no faculty, there were no students, there was no curriculum, and except for the Chief Technical Adviser, there were no international experts or volunteers. It was hardly a moment when the opening of a College seemed imminent (D15, p. 143).

A second series of local meetings quickly occurred to define the goals of the College and to determine the structure of its programs. Surprisingly, for all involved in the planning, N.T.T.C. did open in April with a complement of 16 staff (11 Basotho and 5 expatriate advisers), 78 students (D15, p. 1) and "one office, four desks and two typewriters" for faculty use (D43, p. 15).

Amidst these opening activities, SIMs appear to have been the original idea of the national Director of N.T.T.C., once he was appointed shortly after the College opened. As he himself states:

> I bombarded the CTA continuously with the need for self-instructional materials and he gave me several topics . . . almost all of my higher education was through correspondence, through distance education. I knew it was a very, very strong method of teaching (N1-K).

Due to a lack of other instructional materials, to a need for supplementing the teaching that was going on, and to promote independent learning, this Director and the CTA decided to propose SIMs as an instructional method.

They involved a second UNESCO adviser, who became the coordinator of SIMs, and this adviser's national counterpart. Together, . . .

> We sat down with the people who were advisers . . . it went from here to the Curriculum Committee . . . and we discussed it with the faculty . . . and took it to the Board of Governors for approval (NL-K).

Resistance on the part of the staff and a consequent pressure by the CTA and Director pursued. The Director, himself, referred to both actions in the following quote:

> . . . some of the advisers . . . were afraid of this idea . . . [we] had to twist their arms . . . we literally had to sit down and talk with the local staff. They didn't even know what they [SIMs] were (NL-K).

The CTA also remarked that, while there were attempts to train staff members, he had to "control them into writing SIMs" (NL-O).

Despite this context of resistance and subsequent pressure, the first two sample SIMs were written by July, and an effort to disseminate the innovation among faculty as viable teaching alternatives followed. The UNESCO coordinator for SIMs took on this task and advocated them in a report to the faculty as a way to:

> . . . free the faculty person from the routine of meeting classes on a basis which is not by the choice of the teacher but is dictated by the schedule of the college . . ." (D7).

This coordinator also felt that SIMs stood for "self-directed learning . . . which is exceedingly important in a developing country with limited resources . . ." (D7).

Although he acknowledged their value, this coordinator also recognized during their first year that problems existed within the development of SIMs. In one of his reports to UNESCO, he stated:

> The major problem in creating Self-Instructional Materials is the time for the writing and trial of the materials. These materials will be developed slowly in the beginning but once the materials begin to be developed the faculty will be able to accelerate development because of the familiarity and the freeing of time to work on additional Self-Instructional Materials (D7).

A strategy for development was designed which restricted local staff in their writing SIMs. As a former lecturer described the strategy:

> The agreement was that international staff would take the lead in writing SIMs. The Basotho would take the lead in teaching. This decision was taken by the Director of the College and the UNESCO CTA (NL-R).

While not required to write SIMs, the local staff was requested to advise the international faculty on the content of SIMs and to become counterparts-in-training on the use and production of SIMs.

Thus, by the end of 1975, SIMs were being proposed as an integral part of the College's instructional program. Cited as a policy of N.T.T.C.'s Board of Governors, they were to be used for "approximately 50% of college instruction when fully developed" (D8, p. 6). Targets were being set by each department to produce a certain number and, according to the UNESCO coordinator of SIMs, ". . . all subject areas are committed to significant use of these materials during the second year" (D7).

1976. As an expatriate lecturer remembered:

> In early 1976, there was a major SIMs "tooling up" session presided over by the UNESCO CTA. Every department, including Basotho and expats, took part. Each department produced a pilot material which was critiqued and redone. A flurry of SIM activity ensued (NL-R).

This flurry was the result of a meeting convened by the CTA in early January for the international staff in which the future of SIMs was discussed. According to a draft Prospectus on the development of SIMs, this meeting had determined that the responsibility for writing SIMs would continue to rest primarily within the international staff:

> Just as the regular instructional activities are the responsibility of local faculty with international staff contributing, it is the responsibility of the international staff to ensure the production of the self-instructional materials at the N.T.T.C. This activity is to be done in conjunction with local faculty, who should actively contribute to defining the content of the material (D10, p. 1).

These international staff members were divided into "materials development teams" within each department ". . . headed by a chairman who is accountable to the Chief Technical Adviser for the regular output of the materials planned" (D10, p. 1).

As also stated in the Prospectus, that output was quite ambitious: "Each curriculum area will aim at producing 50 self-instructional materials during 1976. 15-20 units from each area should be completed by April 1976." and, "By the end of 1977, self-instructional materials should be developed to the extent that faculty has the option of using self-instructional materials for 50% of the curriculum" (D10, p. 2).

Concerns on the part of the lecturers, Basotho particularly, about this development process began to arise. Individuals at two separate faculty meetings in January and February were cited as questioning the speed with which SIMs were being produced. Minutes report that one member ". . . hoped that quantity did not surpass quality" (D1, February 9, 1976). Another member questioned the content and ". . . suggested

that the format . . . be standardized; the terms be simplified; the unit be self-contained and the Lesotho names should be real ones, not the concocted type" (D1, January 26, 1976). A third lecturer reported problems in that there were ". . . no sufficient facilities and help for typing and printing" (D1, February 9, 1976).

Despite these concerns, the development of SIMs was documented as continuing during 1976 with little change. Two UNESCO advisers were given the respective responsibilities 1) for designing a standard format, and 2) for editing those produced. The former adviser reported to faculty at a meeting in March as to what that format would be, i.e., how pages should be numbered and where titles should be printed (D1, March 1976).

By February, 14 SIMs were completed, 5 were being revised, and 12 were in draft form. This, however, was not enough for the administration as was stated in a May 5th faculty meeting: "It was noted that some areas are far behind in the production of materials and students are not able to use them" (D1, May 5, 1976). Two causes for this delay were indicated in this meeting: "(1) the lack of typing and reproduction facilities (2) the discrepancy in the order of materials produced and lessons given in the classroom" (D1, May 5, 1976). The separation of those lecturers conducting the actual teaching from those lecturers developing the materials for instruction was beginning to create some tension.

At this time, several faculty recognized the problems within the SIMs development process and attempted to communicate those problems to

the administration. One, unidentified, wrote a memo advising that there existed:

1. need for local staff to be consulted on choice of S.I.M. topics
2. concern about production delays caused by conflict of loyalties . . . uncertainty of typing and duplicating facilities, etc.
3. uncertainty of targets, e.g. should everyone in Area V [Professional Studies] produce 3 or 5 units? (D14).

Questions about how SIMs should be used in the classroom, their role in the syllabus, and the number of student contact hours were also asked (D14). No data was found in response to these concerns.

Instead, as indicated in his farewell speech to the faculty in their meeting of August 9, 1976, the departing CTA related that the major administrative concern surrounding SIMs was still the amount to be developed. The minutes of this meeting cite that:

> [The CTA] . . . was concerned that the rate of production regarding these materials had not been more rapid, since it should be the aim that self-instructional materials exist for each topic. Thus to ensure the success of the programme a target should be set to produce 200 units before the end of the year (D1, August 9, 1976).

The only reference made by the CTA to the national staff's role in this production effort was that he ". . . hoped that members of the National Faculty would contribute to the scheme by each producing at least one self-instructional material per term" (D1 August 9, 1976). This CTA polled the faculty as to their feelings toward SIMs and found that more of the expatriate than national staff favored them (D44).

After the departure of the CTA, the responsibility of overseeing the development of SIMs fell fully on the shoulders of the UNESCO ad-

viser who had been originally designated as the coordinator. His first task as of August was to evaluate the present SIMs and to report his results to the faculty. The latter he did in November. Although the actual evaluation form was not located by this researcher, the final report to the faculty (D15) indicated that students were the subjects questioned about SIMs, not the faculty themselves.

The report mentioned that SIMs were facing several problems, such as the difficulty of their reading level, their length, their dependency on reading and writing, their exclusion from the students' continuous record, and their insensitivity to the Basotho culture (D15). Despite these problems, the report states that students were finding SIMs to be "helpful in preparing them for teaching . . ." and, as a method of instruction, were considered as ". . . interesting and suitable for teaching conditions in Lesotho . . ." (D15).

1977. This same UNESCO coordinator conducted a second evaluation with 101 in-service teachers in January of 1977 on one particular SIMs entitled Closure. He intended to assess the students' opinions about the SIM and its reading level. Unfortunately, he cites in his summary of the evaluation that the questions asked were confusing and that the only results he found were that students felt the reading level was "just right" (17). This finding was not indicated as having been reported to the faculty at any faculty meeting.

In addition to evaluating the present SIMs, this coordinator was also responsible for the organization of training activities directed

at the lecturers developing SIMs. He refers to various "small discussions" he held with faculty (D12-3); but, primarily, he describes his arranging of a SIMs workshop led by a visiting UNESCO consultant in February and March of 1977. This workshop was the first, focused effort to train the N.T.T.C. staff in SIMs.

The UNESCO consultant hired to implement this workshop described the workshop's rationale as follows:

> Production has been rapid (by January 1977), 88 units had been produced and the prospectus requires 8 hours work on SIM a week by each student. At this point it seems that the College staff felt a need to review progress thus far and to consider the next steps in the SIM programme (D18).

For three weeks, this consultant led faculty (Basotho and expatriate) in activities focused on the writing of SIMs. No direct evidence was found as to the content of these activities nor as to the number of participants. The consultant's final report to UNESCO, however, contains interesting observations which he concurred from the workshop regarding the development of SIMs up to that date. He stated:

> It appears that the policy has been that mainly International Staff should be responsible for the writing of SIM on the grounds that the National Staff have a full teaching load. This is understandable. Less understandable is the apparent policy to build up a bank of SIMs to be used after the International Staff had left.
>
> I have two objections to this. First it would leave the educational system of Lesotho without the necessary skills to continue the revision and production of materials and would, in time, lead to their fossilization. Second, it ignores the very strong educational value of participating in the development of SIM; participation, alone, leads to insights into teaching which are not easily acquired otherwise" (D18).

In addition to these general observations, the consultant also

proposed several recommendations to the administration. First, he suggested that the content of the SIMs be more in line with the syllabi. Since the international staff were usually writing SIMs in isolation from the teaching faculty SIMs were found by this consultant to be often irrelevant to the general curriculum. Secondly, due to this isolation, no standard format had been designed. and he stated that one was necessary within and between departments. Finally, he recommended that the scale of the SIM development be reassessed. He commented that:

> With the advantage of hindsight, it is an unescapable conclusion that the rapid large scale and diversified introduction of self-instructional materials was ill-advised. . . . The scale of the operation made the necessary day-to-day, detailed guidance impossible (D18).

He gave the College a very thorough document entitled Notes for Guidance (D19) which was reportedly distributed to all faculty. Here, for the first time since the inception of SIMs in 1975, was a standard guide for their use and not just for their development.

This consultant also reported back to UNESCO headquarters in Paris on the status of SIMs, and concern there was raised. A letter from the Project Administrator (D20) was sent to the second CTA with recommendations as to the future of SIMs. The writing of SIMs within groups rather than in isolation was one recommendation. A second was that the Curriculum Committee overview the production of SIMs so that their content would fit the College's syllabi. Finally, a suggestion that national staff and students be involved in their writing was offered. The letter concludes on a positive note, nonetheless, that:

> The NTTC has made a promising start in developing SIM and should be given as much support as possible in this innovative endeavor, which should ultimately benefit both pre-service and in-service teacher education in Lesotho significantly (D20).

Future consultancies were proposed as was continued material support.

The only reaction to these suggestions evidenced in writing by this researcher was found in the final report to UNESCO by the then departing UNESCO coordinator of SIMs. His report (D21, July 22, 1977) indicated that, indeed, an effort had been made to localize the content of SIMs and to incorporate Basotho staff. He wrote:

> Even though the materials have been developed largely by international staff, considerable attention is directed to making the materials reflective of the situation in Lesotho. This has been done in a number of ways. One, the authors of the materials are expected to undertake visits to schools throughout the country to familiarize themselves with actual conditions. Two, materials are developed in consultation with national faculty. Three, a field test is undertaken to assess appropriateness for local conditions. And four, consultants are hired from time to time and do in-depth workshops with international and national staff.

The history of SIMs during the last six months of 1977 is not well documented, which may be, in and of itself, an indication of how they were faring. The first CTA, the first Director, and the first UNESCO coordinator were now gone, and the designation of any one coordinator was not mentioned until the Faculty minutes of October 17, 1977. No successive documents read by this researcher mentioned her name again.

In that same October 17 meeting, however, several reported comments give insight into the progress of SIMs. The second CTA is reported to have ". . . stated his concern about SIMs lying in the printing room waiting to be distributed and used by students" and ". . . the

organization of SIMs was discussed but no decision reached. They were to be put on the next meeting's agenda" (D1, October 17, 1977). The next time SIMs were mentioned, however, in any minutes of faculty meetings was April 17, 1978, a full six months later. These data pieces corroborate with the following observation stated by a former lecturer:

> Following the departure of the original CTA, it became hard to sustain an interest in SIMs and in providing training. Teaching loads loomed larger and more immediate leadership at the College began to dissipate (NL-R).

1978. 1978 was a crucial year in the history of SIMs. The faculty had grown substantially since 1975 to 40 national and 55 international lecturers. The on-campus student body had increased to 600. Without the original advocates of SIMs (the first CTA, the first Director, and the UNESCO coordinator), the treatment of SIMs during this year had a considerable impact on their future.

Unfortunately, little documentation of SIMs during this year is recorded within the minutes of faculty meetings. Indeed, SIMs are mentioned in only two (D1, April 17 and May 10, 1978). The only major documentation of SIMs during this year is evidenced in the administration's efforts to respond to criticism from the staff that their concerns about SIMs were being ignored.

For example, one particular lecturer communicated his concerns to the administration in a detailed, three-page memo (D22). He remarked that, in regard to the recommendations made by the UNESCO consultant in early 1977, "Some of the problems which they identify seem not to have been fully discussed or even provisionally solved." Point by

point, this lecturer described how 1) the collaboration within and between departments, 2) the involvement of national staff, 3) the coordination by a local body, and 4) the clarification of SIMs' development and use had not been addressed. He closed his comments by suggesting that "With the approach of the open season for SIM production, other members of the NTTC besides myself might welcome authoritative guidance on College policy." No immediate response from the administration was found by this researcher.

What followed in April, however, demonstrated that some members of the College administration were concerned about SIMs. The first Director returned to N.T.T.C. for two weeks from his study-leave in the US in order to lead a UNESCO sponsored international seminar on "Evaluation of Teachers" (D23). This seminar, from March 27-April 1, consisted of several plenary sessions followed by small group discussions on the "quality control of self-instructional materials." Specifically, it focused on the ". . . 1. programme policies, 2. coverage formats, 3. instructional objectives, 4) SIM content, 5. assessment of SIMS, and 6. recording and reporting on student progres" (D23).

Despite it being an international seminar, most of the participants were N.T.T.C. faculty who, during the small group meetings, stated their concerns about and recommendations for the use and development of SIMs. One of three groups responsible for discussing the policies for SIMs suggested that a SIM committee be established to ". . . attend to such questions as: the way or ways in which self-instructional materials should be used, the suitability and accuracy of the content

of new SIMs units, and the provision of adequate library space for SIM" (D23, p. 13).

A second group pointed out that ". . . following the worsening of the staff-student ratio the output of SIM in the college has declined . . . many of the units are teacher-bound and fall into disuse as soon as the writer leaves the College staff" (D23, p. 14). A recommendation was offered that SIMs be given free to students, costing the College 20 R a year. This would alleviate the theft of SIMs which was becoming rampant.

The third group also supported the formation of a SIM committee which would be responsible for making policy decisions on SIMs, especially on their role in the classroom. This group remarked that there were too many conflicting purposes for SIMs:

> Some units are remedial, some are substitutes for teachers. Some are essential elements of courses, while others provide alternative approaches to a course (D23, p. 14).

A SIMs committee was never organized, but two efforts were pursued by the administration to address these concerns. The first effort was the development of a Manual of Guidance by the first Director of SIMs (D24). Designed in the form of a programmed instructional unit, this manual was primarily written as a paper to complete a course the Director was taking from the first CTA while on study-leave. The paper was reportedly distributed to all N.T.T.C. faculty. While the Director theoretically examined within this paper the concerns his staff at N.T.T.C. had about SIMs, he suggested very few practical solutions.

The second effort to address these concerns was the visit of a

second UNESCO consultant who conducted a three-week workshop in April on curriculum development, specifically for SIMs (D25). It appears from this consultant's concluding report that faculty were continuing to request 1) a coordinating body for the supervision of SIMs, 2) clarification of SIMs' format, and 3) the inclusion of all staff in their development. This consultant recommended that the staff of the newly built IMRC (Instructional Materials Resource Center) and the staff of N.T.T.C. collaborate on the development of SIMs. He also encouraged training within a counterpart structure which would be funded jointly by the Basotho government and UNESCO. The first financial commitment by the Basotho to SIMs was being broached.

The creation of IMRC during 1978 greatly affected the development of SIMs. The Center, sponsored by the United States Agency for International Development (USAID), took on the task of printing and editing SIMs. Up to this time, SIMs were being produced as mimeographed sheets, compiled into booklets with few graphic designs and often meager durability. SIMs published after 1978 by the IMRC were bound by durable covers and contained evidence of professional graphic designs. Three full-time AID consultants and two Basotho were assigned to the IMRC and were to offer assistance to N.T.T.C. staff on the development of SIMs. Unfortunately, the two Basotho members left to follow a year-long study tour in the US.

Nevertheless, in conjunction with the remaining staff of IMRC, a third workshop was offered in May by an AID consultant. His focus was not specifically on SIMs but on any material development effort which

the College was undertaking. He reported to the N.T.T.C. faculty in their May meeting that he would assist in making the relationship between N.T.T.C. and the IMRC clear and in helping any departments with their curriculum development (D1, May 10, 1978).

During this same month, two UNESCO teams of consultants arrived at the College for evaluation purposes. The first team intended to assess N.T.T.C. as an educational innovation; the second intended to assess if N.T.T.C. were meeting its project objectives. Both found numerous problems. The first team reported that the local "take over" of the College was very slow (D27). While the team agreed that this was partly due to the rapid expansion of the College's student population, it also cited that there was a:

> . . . lack of a sufficiently large pool of trained manpower for the NTTC to draw on; while the Government expressed regret that the three cooperating partners had not looked into this matter in greater detail at the time of the project preparation, it cited the political imperative to commence activities as soon as possible (D27).

The second team found that the budget for N.T.T.C. had been underestimated and that the Basotho government was going to have to double its contribution by 1980: R418,000 to R1,000,000 (D26). The amount of money alloted by UNDP for instructional materials was to increase from $10,000 (US) to $12,000 and for group training from $12,000 in 1977 to $30,000 in 1979 (D26). These increases were reportedly due to the rapid and massive expansion of N.T.T.C.'s student population. Enrollment in 1978 was up to 600 students on campus, 300 in the second-year internship off-campus, and 400 in the in-service program (D30).

The first Director, who had at this time returned full-time to N.T.T.C. from his study leave, recognized these problems, too, and their effect upon the College. In a November 14 memo which he circulated to faculty, he warned:

> In terms of numbers the NTTC has done in a space of four years what many would have thought impossible. A dream has become a reality . . . instructors have increased . . . and will rise by a further thirty. As that happens international staff are decreasing very fast as their contracts terminate. We should remember that unless a great deal of care is taken, large student enrollment without corresponding numbers of good quality staff might result in lowered standards of performance (D30).

The immediate impact of this rapid growth on SIMs was that administrators and faculty, alike, were becoming increasing concerned with the time and effort necessary to produce SIMs. The Curriculum Committee began to question the reality of students using them for 8 hours of their instructional time (D29), and only 24 SIMs were published for the entire year.

1979. Very little activity involving either the development or the use of SIMs is documented for this year. An effort was made in March by an IMRC expatriate adviser to standardize their use in the form of a four page outline given to faculty (D31). This outline included a discussion of the various components within SIMs: a title page presenting the title, author, and department; a table of contents; directions; a statement of aims and objectives; an introduction to the topic; the topic narration; and self-checks. Certain suggestions were also offered to make the content understandable: clear language, descriptive graphics,

and appropriate length. This outline concluded with a commitment by the IMRC to help N.T.T.C. staff in the use of SIMs:

> The IMRC staff is prepared to assist in the creation of SIMs that meet these criteria. You are the subject matter expert, but there are a number of ways where the IMRC can help, if asked. Ask for that help early, and both of our tasks will be easier (D31, p. 3).

In April, a third UNESCO CTA was hired for N.T.T.C. Having served as an adviser to the College since 1976, his experience with SIMs had been quite intimate. He had both written several SIMs and had assisted in the counterpart training of Basotho within his department.

In June, a fourth workshop devoted strictly to SIMs was conducted by an USAID consultant in conjunction with the IMRC staff. This workshop was

> . . . derived from the particular interests expressed by the workshop participants. . . . They were specifically interested in finding ways to improve the self-instructional materials (SIMs) booklets that are a required output of all faculty members at NTTC" (D32).

As the consultant stated in her final report on the workshop: "Participants were very concerned that they did not know how to improve their skills as SIMs writers" (D32). Seven people attended this one-day session, 5 Basotho and 2 expatriates.

Despite the IMRC's written commitment in March and its June workshop, efforts to train N.T.T.C. staff in SIMs thereafter diminished. The one national staff member who had been assigned as of August to act as the direct liason between the IMRC and N.T.T.C. faculty for training and editing purposes was cited in interviews as unable to fulfill his role. He, himself, stated that:

> . . . I had no time. I talked to some members of the faculty and then others showed some interest of course. And then they also wanted some help but because I didn't have enough time, I couldn't just help them (L55).

A fifth and final workshop was led by this individual, but, as he said, ". . . it wasn't very successful. There wasn't much attendance. . . about 4 or 5" (L55). In describing the work pattern of this individual, another IMRC staff member remarked that this individual ". . . was not interested and [his] training was lacking . . . [He] just didn't show for work" (NL-L).

In August, the first Director resigned from N.T.T.C. to take up a post in the Ministry of Education. In his final report to the College staff, he reiterated the problems stated by the previous year's UNESCO evaluations, problems caused by the rapid growth of the College. In addition, he cited two problems inherent within the bureaucratic structure of the College and the Ministry of Education. Each of these he considered as influential within the progress of SIMs.

First, he acknowledged that the increase in qualified local teacher trainers was not meeting the increase in student enrollment at N.T.T.C. This, he cited, was due to the "non-availabiilty of a pool of persons qualified at a high enough level (post-graduates) and having wide teaching or educational administration experience" (D33).

Secondly, he remarked that the professional status of N.T.T.C. faculty was not being held as highly as the faculty desired. The Ministry of Education had given faculty a civil service rating which differed from the non-civil service status of other teachers: primary,

secondary, or tertiary. Discrepancies in salary and release time had ensued. As the Director's report stated:

> Salaries at the college are exactly the same as those offered in high schools and this results in mature and experienced teachers preferring to remain in the High Schools rather than move to the NTTC with no financial benefit. After a struggle of three years, Government has just agreed to a responsibility allowance for NTTC. . . . Senior administrative officers (S.A.O.) were not included in these benefits with the result that Senior Lecturers' total emoluments equal or surpass their own, creating problems of morale (D33).

This lack of financial compensation was compounded by the fact that, as civil servants, the N.T.T.C. staff was working full-time for 12 months, assisting in the in-service training program for teachers during vacation or weekend periods. To be paid less than those teachers in the secondary schools who were guaranteed vacation release time distressed N.T.T.C. faculty. As a result, a steady decrease in their motivation to produce, use and learn about SIMs was becoming evident.

The Director acknowledged this dilemma and called first, in his report, for ". . . a well-defined scheme of staff training and development" (D33). Although he recognized that most of the SIMs had been written by expatriate staff who were leaving the College, he felt that ". . . the local staff have recently produced materials which are now extensively used. More is yet to be done by way of training local personnel in all subjects to produce these materials" (D33). He suggested that the remaining expatriate advisers decrease their teaching loads to allow for staff training periods and that all local staff teach 35 hours per week, leaving 5 for the production of SIMs and micro-teaching supervision. He called, secondly, for a Ministry commitment to upgrade

the status of N.T.T.C.'s staff in the form of both financial and training support. These pleas were to little avail; for, gradually, the government's coffers were running dry and the continued financial support for N.T.T.C. was becoming tenuous.

The production of SIMs during this year reflected the low morale described previously. Only 20 were produced, all by expatriates. No word of them is mentioned in any of the faculty meeting minutes nor in the minutes of any Curriculum Committee meeting.

1980. Documents reviewed for this year give even less evidence of SIMs than those documents from 1979. Prior to a second UNESCO evaluation of N.T.T.C. in August, little mention of them is even cited--only once within any minutes of faculty or Curriculum meetings. Insight into the interest of faculty and administration may be gained, nonetheless, by four other short references. The first is a memo in March to the Curriculum Committee by the third CTA regarding the College's electives in which he mentions that ". . . self-instructional materials occupy a good deal of space in the library--if not in the curriculum" (D35). The second reference is a statement by the CTA that the Curriculum Committee had within its work plan for 1980 "a review of self-instructional material and the extent to which it is used (or not used)" (D36). The third is a request in June by the then acting Director to the N.T.T.C. faculty for the completion of a "survey of self-instructional material in relation to how the curriculum is being carried out . . . in anticipation of a forthcoming evaluation of college progress . . ." (D37).

This request appears to have gone unheeded, for the minutes of a faculty meeting on July 14 cite that "survey forms have been returned by only a few departments" (D1). Documented evidence of the results of either the survey or the review was not located by this researcher, nor did the third CTA or then acting Director remember during interviews that either had taken place.

Similarly, little mention of SIMs is cited in the N.T.T.C. papers prepared for the second UNESCO Evaluation Mission (D38) in August nor in UNESCO's concluding report after the mission (D39). Instead, both sets of documents focus on the concern regarding the College's "shortage of national staff" (D38) in light of N.T.T.C.'s current enrollment which had increased "in leaps and bounds" (D39) and the "present low morale of an over-stretched staff" (D39).

In addition, the UNESCO report cites a growing difficulty in the management of the College and the ". . . need for clear consultative procedures and greater staff participation in matters affecting the interests of the staff and the institution . . ." (D39). More counterpart development was recommended as was a decrease in the dependency on donor funding. It appears that the College was experiencing a paradoxical situation in that expatriate advisers were needed for local training, but their cost continued a dependency pattern. This dilemma was compounded by the perception of N.T.T.C. as a "showplace teacher education institution" (D39). The report cites that:

> Jealousy of the NTTC and its strong donor support by less favored elements of the educational system was viewed as

> a factor influencing acceptance of the College by the educational system and the Ministry of Education (D39).

Within these reports which focus on the problems of undertrained, underpaid, and overworked staff; of a mismanaged organization; and of a financial dependency on donor agencies, it is no wonder that SIMs were not given much attention. It is a wonder, however, that SIMs had become so totally absent that they weren't even mentioned within the UNESCO Evaluation Mission's assessment of teaching methods. Indeed, the assessment report states that, after questioning 21 Advanced Primary Students (which the Mission admits is a small sample),

> . . . there is little indication of any significant differentiation of methods used for teaching knowledge . . . from teaching . . . and values. . . . The range and variety of methods commonly used would appear to be rather limited (D39).

This limitation may also be demonstrated by the fact that only 5 SIMs were published this year, none by Basotho.

Measures were taken by UNDP to address the financial, staff and management problems facing N.T.T.C., and in October, a Project Revision (D40) was completed. Additional emergency funding was alloted to the College for increased staffing, training, and management assistance. One of the proposed results of this funding included the continued production of ". . . self-instructional materials to fill identified gaps in the curriculum" (D40). Despite their apparent decrease in status, SIMs were still being identified as worthy of investment--at least, on paper.

1981. In 1981, 6 SIMs were produced. Each of these had been initially

developed by three expatriate writers in 1979 or 1980, but problems in the printing by IMRC had delayed their final distribution. An IMRC staff member commented on this delay. He stated that the writer of one of these SIMs,

> . . . left the SIM in handwritten form. . . . I went to the rest of [his] department to finish the SIMs. It took over a year . . . the rest of the faculty were not willing to help. (NL-M).

Another staff member remarked that this delay was influenced by the actions of the local staff member who replaced the first local SIMs coordinator and who was responsible for the editing of SIMs: she "won't work" (NL-L). This local staff member, herself, stated that she did not feel responsible for SIMs, for the ". . . difficulty is that no one who wrote them was here" (NL-N).

During 1981, funding for SIMs at the College continued to decrease, and faculty were being informed through administrative memos to curbe their use of the IMRC printing facilities (L23). No workshops were offered during this year for SIMs; little counterpart training, if any, was reported.

Overall, the entire year was not conducive to the development nor use of SIMs. A December report of a UNESCO consultancy to review the organization and management of N.T.T.C. describes the institutional environment affecting SIMs during this year:

> As a symptom of the dissatisfaction with their treatment, sensitive to criticisms that they should conform to civil service patterns of behavior and frustrated by the incoherence in College organization, the academic staff (including the Director) have been reluctant to take on additional tasks (D42).

Faculty were cited within this report as being unsure of their teaching roles:

> . . . Not all departments seem very sure of how many contact hours each week are required for each course and thus how many lecturers they really need. The time-table is often referred to as being a problem forcing everyone into the same time allocations and within it some departments share PTC [Primary Teacher Certificate] work, some leave it all to one lecturer (D42).

On the whole, the staff was seen as:

> . . . individually and collectively, weary/overwhelmed by the gaps and lack of coherence in the system. Many arrangements, e.g. provision of administrative staff, lines of command and communication that were adequate for a college of 200-300 students have become fossilized and are inappropriate for an establishment of 1,500. For some of the staff, the laxity of control has allowed them to interpret and bend procedures as they wish, e.g. doubling of classes, dropping of courses and despite complaints of being overworked, the taking on of other jobs. Most of them are, however, aware that things should and could be different, but where to begin, when the fabric of the College is about to unravel, and it has all been said before (D42).

An environment supporting the survival of SIMs was fading. As the next section of this Chapter presents, this trend continued into 1982 and with it faded the capability of SIMs to be institutionalized.

Institutionalization Level of SIMs: 1982

As stated in Chapter III, a high institutionalization of SIMs would be indicated by: 1) a majority of N.T.T.C. lecturers using SIMs according to the Configuration Pattern Checklist at either the LoU Level 4A (Routine) alone or at Levels 3 through 5 (Mechanical through Integration) collectively, 2) a majority of lecturers' concerns focus-

ing beyond the SoC 3 (Management Stage), and 3) a high level of social system support as evidenced in substantial financial, training, material, personnel and personal commitments. The text, figures, and tables which follow present the analyses of data provided by the various instruments and methods which assessed each of these indicators.

Levels of use. In order to understand the levels of use at which SIMs were rated by the current N.T.T.C. lecturers, it is expedient to present the definition of each level according to the CBAM literature. Table 2 lists those behaviors which characterize subjects and their use at each level. A more detailed LoU chart developed by the CBAM researchers may be found in Appendix E-11.

Figure 5 displays the frequency of N.T.T.C. lecturers at each level of use according to the researcher's analysis of data from the LoU Interview. This analysis was completed with the aid of the Level of Use Rating Sheet (see Appendix E-10) and was verified by a certified CBAM consultant. The correlation between the investigator's ratings and those of the consultant on data from 15 randomly selected LoU interviews was 1.00. An examination of the "Institutionalization Section" in Figure 5 indicates that a majority of N.T.T.C. lecturers is not using SIMs at either Level 4A (Routine) alone or at Levels 3, 4A, 4B, and 5 (Mechanical through Integration) combined. For a complete listing of the Level of Use for each lecturer, see Appendix F.

Use/non-use. In dividing the LoU results into a dichotomy of users and non-users, this researcher had defined users as those sub-

TABLE 2

Definition of Levels of Use

LEVEL 0 NON-USE	State of use in which the user has little or no knowledge of the innovation, no involvement with the innovation, and is doing nothing toward becoming involved.
LEVEL 1 ORIENTATION	State in which the user has acquired or is acquiring information about the innovation and/or has explored or is exploring its value orientation and its demands upon the user and user system.
LEVEL 2 PREPARATION	State in which the user is preparing for the first use of the innovation.
LEVEL 3 MECHANICAL USE	State in which the user focuses most effort on the short-term day-to-day use of the innovation with little time for reflection. Changes in use are made more to meet user demands than client needs. The user is primarily engaged in a step-wise attempt to master the tasks required to use the innovation, often resulting in disjointed or superficial use.
LEVEL 4A ROUTINE	Use of the innovation is stabilized. Few if any changes are being made in ongoing use. Little preparation or thought is being given to improving innovation use or its consequences.
LEVEL 4B REFINEMENT	State in which the user varies the use of the innovation to increase the impact on clients within the immediate sphere of influence. Variations are based on knowledge of both short-term and long-term consequences.
LEVEL 5 INTEGRATION	State in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on clients within their common sphere of influence.
LEVEL 6 RENEWAL	State in which the user re-evaluates the quality of use of the innovation, seeks major modifications of or alternatives to present innovation to achieve increased impact on clients, examines new developments in the field, and explores new goals for self and the system.

(Loucks,Newlove and Hall,1975,p.8)

jects at Levels 3, 4A, 4B and 5 and non-users as those at Levels 0, 1, 2 and 6. Table 3 indicates that 16 (28%) of the N.T.T.C. lecturers are users; 41 (72%) are non-users. These two groups are depicted in Table 3 where the non-users are also categorized as to their familiarity with SIMs. It is noteworthy in Table 3 that 8 (14%) of the lecturers had never heard of SIMs until the LoU interview and that 17 (41%) of the non-users had been former-users.

Users. An analysis of data on the user population (N=16) provides insight as to 1) the departments from which users came, 2) the number of SIMs available to users, and 3) the number of Third Year Students stating use. Table 4 displays this analysis. According to Table 4, the Agriculture Department includes 3 users of SIMs within its faculty of 3. There are SIMs covering 16 topics and, among these 16, that topic with the fewest copies available has 9 copies, and the topic with the most available has 31. 167 Third Year Students said they had used SIMs in either or both their first and third years (the second year is an internship completed off-campus). What is particularly interesting in Table 4 is that data on the users in the Sesotho Department reveal that there are no SIMs available and that only 2 Third Year Students stated that they had used SIMs in classes within this department. Further investigation of data from the SIMs Report Sheet (see Appendix B) indicates that while three copies of instructional materials labeled as SIMs were avilable for students in the library; in fact, none of these were valid, self-instructional materials. (This mislabeling was often the case in other departments as well and is discussed further in Chap-

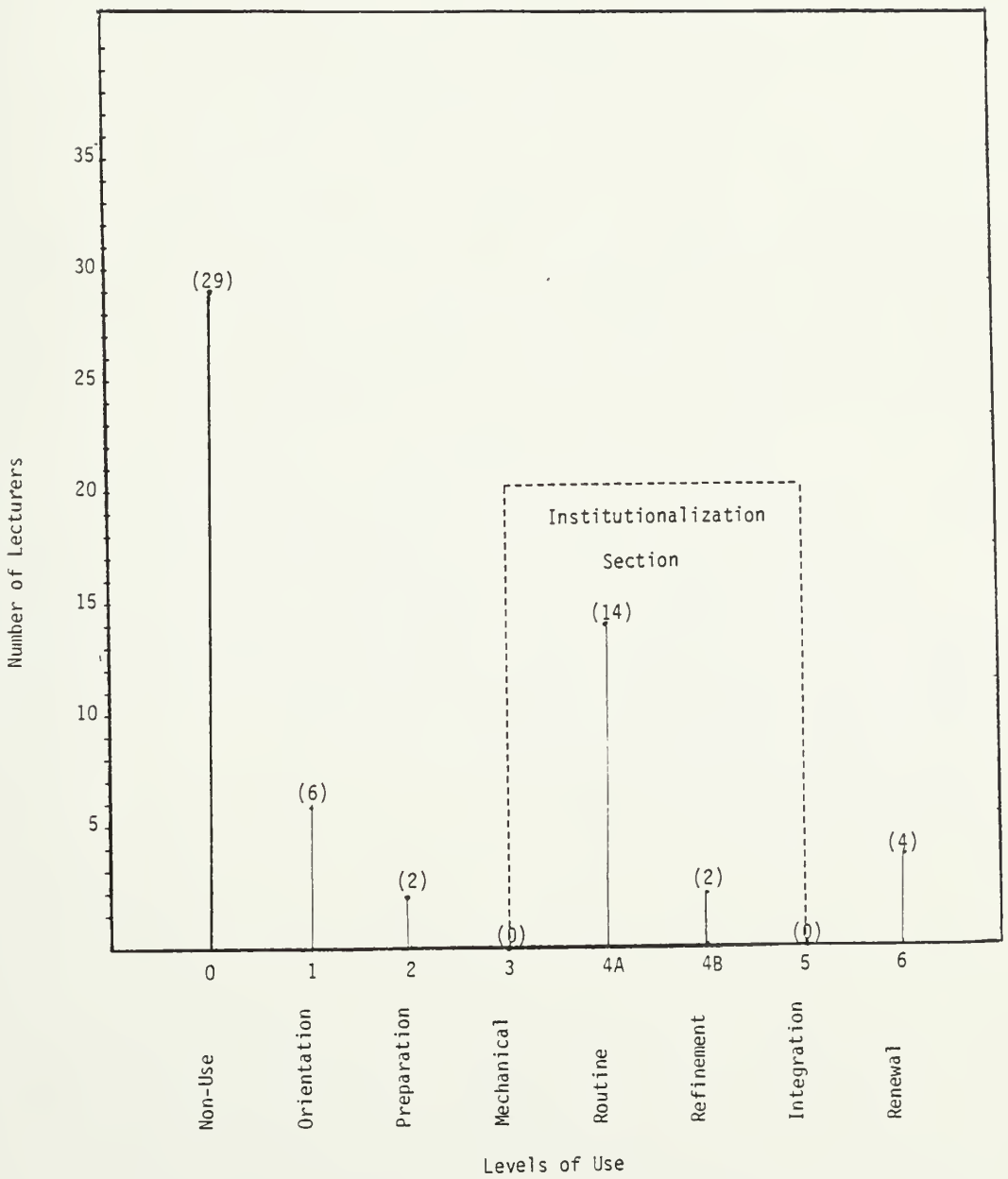


Figure 5. Levels of Use for 57 N.T.T.C. Lecturers

TABLE 3

Frequency of Users and Non-Users According to Familiarity with SIMs

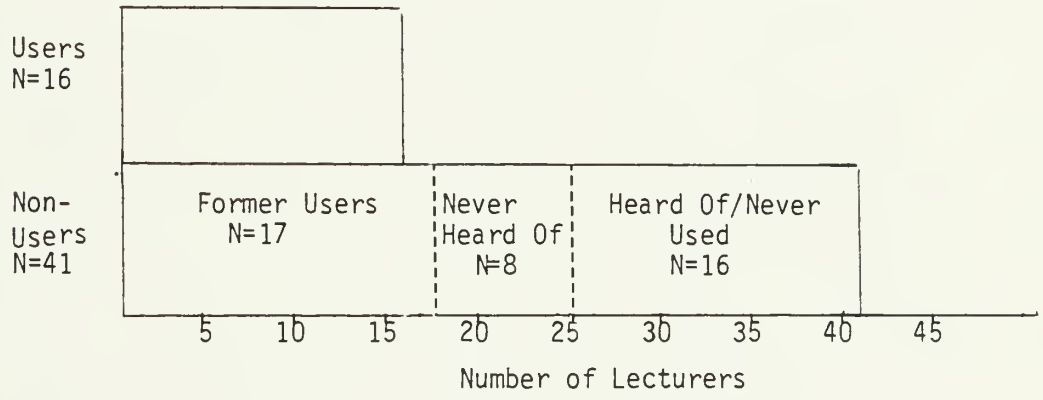


TABLE 4

Users According to Department, Availability of SIMs, and Reported Third-Year Student Use

Users	Department	Number Of Lecturers In Department	Number Of Valid SIMs By Topic	Number Of Copies Of SIMs: Least and Most	Number of Third Year Students Reporting Use
3	Agriculture	3	16	9-31	167
3	Science	5	17	2-70	41
2	Health	2	4	5-23	9
2	Sesotho	7	0	0- 0	2
1	Home Economics	2	18	10-35	130
1	Religious Education	2	3	11-16	5
1	Social and Dev.Stu.	5	10	0-13	19
1	Secondary Technical	5	3	7-17	10
1	Profession Studies	8	25	0-50	15
1	Math	8	6	0-36	30
0	Physical Education	1	1	14	1
0	Arts and Crafts	1	17	3-42	1
0	Commercial Science	1	8	2-17	0
0	English	7	30	7-49	17

ter V.) The question is raised, then, as to whether or not the two Sesotho Department members who indicated use are actual users.

Table 4 also raises a question about the quantity of use if, as demonstrated in the Secondary Technical Department, only 10 students out of 300 Third Year Students indicate using SIMs and if only 13 topics are covered with 7 copies of one topic and 17 copies of another. Four departments (Sesotho, Social and Development Studies, Professional Studies, and Math) have no copies of particular topics covered by SIMs.

A final analysis of the data on users indicates a relationship between the year when users were first employed at N.T.T.C. and use. Table 5 presents this analysis and reveals that the number of users within each successively hired group decreased considerably in relation to the time when SIMs were first introduced in 1975. The longer SIMs were present, the greater was the tendency for new teachers not to use them.

Stages of concern. As presented in the introduction to the analysis of data on Levels of Use, this section also begins with a list in Table 6 of definitions for each Stage of Concern.

Figure 6 displays the frequency of N.T.T.C. lecturers at each of these stages according to the researcher's analysis conducted with the aid of the SoC Quick Scoring Device (see Appendix E9). Focusing on the "Institutionalization Section" marked on Figure 6, it is evident that a majority of lecturers has not resolved its concerns beyond the Management Stage. Only 7 (approximately 12%) indicate a focus on the im-

TABLE 5

Frequency of Users According to Year of First Employment

Year of First Employment	Total Hired During Year	Users
1975	5	2
1976	11	5
1977	5	2
1978	10	3[a]
1979	4	1
1980	4	0
1981	17	3[b]

Note.

[a]This number includes the two users from the Sesotho Department.

[b]One of these three lecturers was a former NTTC student and stated that she had used SIMs as a student.

TABLE 6

Definitions of Stages of Concern

0.Awareness:	Little concern about or involvement with the innovation is indicated.
1.Informational:	A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried about himself/herself in relation to innovation. She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects,and requirements for use.
2.Personal:	Individual is uncertain about the demands of the innovation, his/her inadequacy to meet those demands, and his/her role in relation to the reward structure of the organization, decision-making and consideration of potential conflicts with existing structures or personal commitment. Financial or status implications of the program for self and colleagues may also be reflected.
3. Management:	Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency , organizing, managing, scheduling, and time demands are utmost.
4. Consequence:	Attention focuses on impact of the innovation on students in his/her immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance and competencies, and changes needed to increase student outcomes.
5. Collaboration:	The focus is on coordination and cooperation with others regarding use of the innovation.
6. Refocusing:	The focus is on exploration of more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. Individual has definite ideas about alternatives to the proposed or existing form of the innovation.

(Hall,George,and Rutherford,1979,p.7)

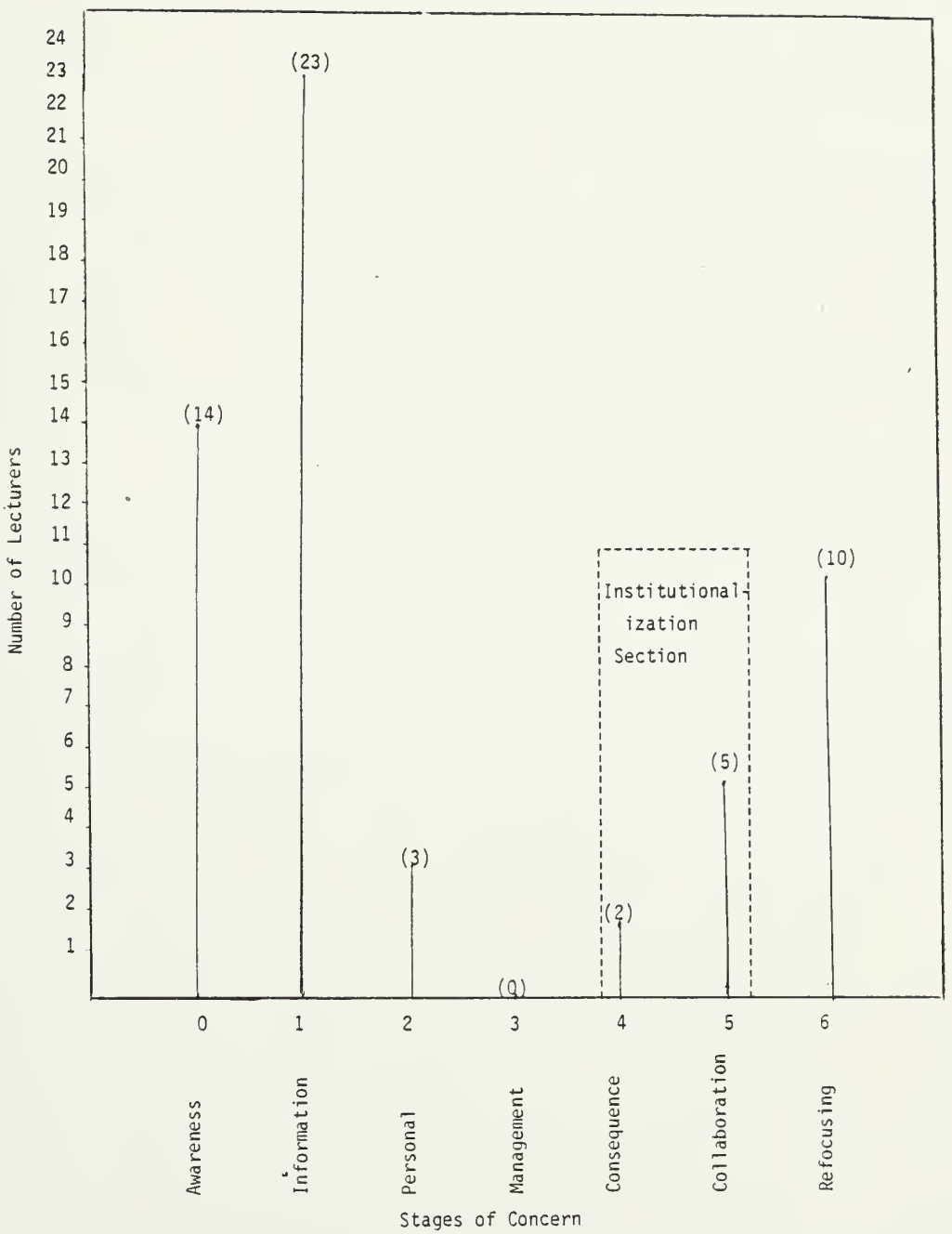


Figure 6. Frequencies of N.T.T.C. Lecturers at Highest Concern Stages

pact of SIMs on students (Conseqeunce) or on collaborating with others (Collaboration) to improve that impact. Ten are concerned with exploring major changes in SIMs or in replacing them completely. (See Appendix F for a complete list of concerns for each subject.)

Levels of use/stages of concern. A comparison of the analyses of both the Levels of Use and the Stages of Concern provides insight into the concerns particular to users or non-users. This comparison is highlighted in Figure 7 which presents the number of users and non-users at each Stage of Concern.

Concerns/users. Initially, it is interesting to note that, although using SIMs, 8 of the 16 users are concerned about SIMs at levels below those indicative of institutionalization. Four of these 8 are still concerned about seeking information (SoC-1) and 3 have little concern at all (SoC-0). One is concerned about the effect use will have on her personally (SoC-2). Five of the remaining 16 users are concerned about refocusing which could include making major changes in their use of SIMs (SoC-6) or even seeking alternatives to SIMs. Only 3 users are concerned about the impact SIMs have on students which represents concerns at an institutionalization level (SoC-4, 5).

Concerns/non-users. Secondly, an analysis of the 41 non-users indicates that those 5 at the Refocusing Stage (SoC-6) are all former users. Indeed, they have made such major changes that they have actually terminated their use of SIMs. Of the 11 at the Awareness Stage (SoC-0), 5 are past users, 5 are not, and 1 had never heard of SIMs. Concerning those at the Information Stage (SoC-1), only 3 are past

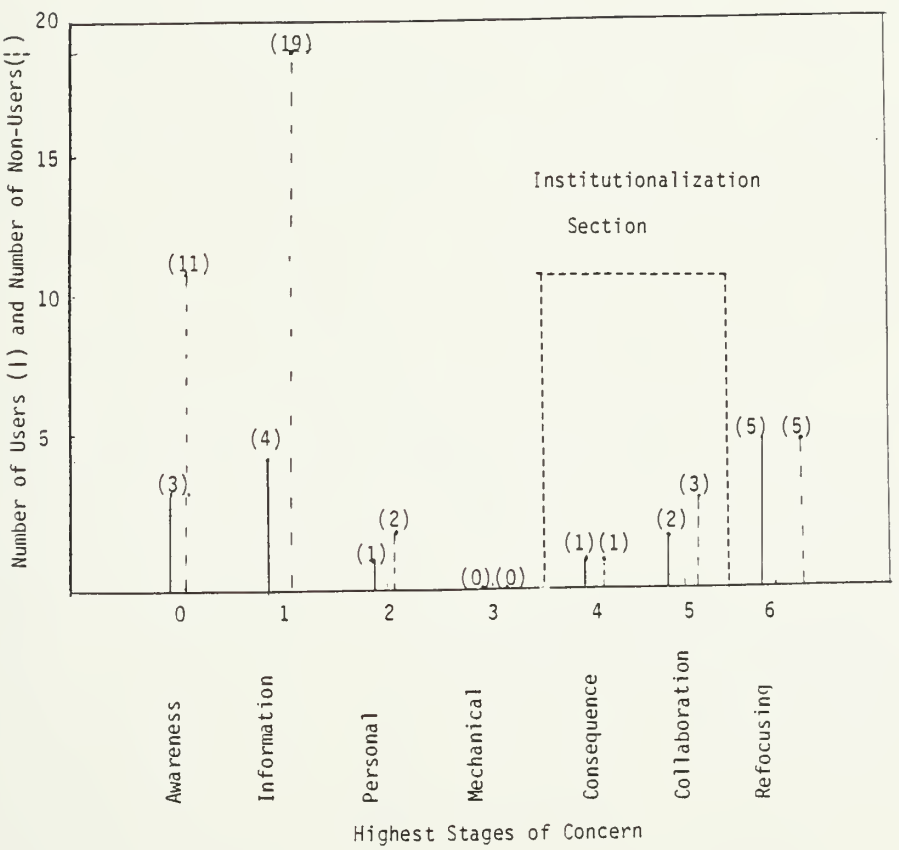


Figure 7. Frequency of User and Non-User Lecturers at Their Highest Stages of Concern

users, 12 are not, and 4 had never heard of SIMs. A majority of the past users therefore, are at Stages of Concern in which little or no concern for SIMs is indicated. Only 1 former user is at the Consequence Stage (SoC-4) and another 1 at the Collaboration Stage (SoC-5). The implication of these results will be discussed further in the factors analysis section of this chapter.

Social system support. As described previously in Chapter III, the indicators in this study of social system support were the financial, personnel, training, material and personal support given to SIMs by representatives of the N.T.T.C. administration, its Board of Governors, the Instructional Materials Resource Center (IMRC), and the Ministry of Education. Following is the analysis of data on each of these indicators collected from the responses by representatives of the foremention organizations to the Social System Support Interview and SoC Questionnaire as well as from documentary reviews.

Financial support. To understand the current financial support for SIMs, it is necessary to examine first the overall funding system of N.T.T.C. As stated previously in the historical review section of this chapter, two sources of funding provided for N.T.T.C.: the Basotho government and donor agencies. As of the Spring of 1982, these donor agencies included UNESCO, the British Council, USAID, the United States' Peace Corps, and the Danish and Irish governments. Monies came directly from the Basotho government and UNESCO, while in-kind funding such as personnel, materials, and fellowships came from the other agencies listed.

Neither in interviews nor in any current documents reviewed were any budget line items (Basotho or donor) devoted specifically to the cost of SIMs. According to one administrator at N.T.T.C., there was ". . . no budget for SIMs nor for other instructional materials" (NL-C). Another administrator stated that there was ". . . no money from the College for SIMs" (NL-B). A third offered a more moderate view that, as for funding, there was ". . . none today for SIMs except printing. Money could be found from the College if someone wanted to print one" (NL-A).

N.T.T.C. received its cash flow monies from the Basotho government in conjunction with direct funds from UNESCO. Both coffers were running dry at the time of this study. Operating costs as of January were -58.00R (D1, January 27, 1982). The Basotho government's financial support of N.T.T.C. was so tenuous that the opening of the Spring 1982 semester was postponed by a week due to financial problems. At the end of the semester, a Tri-partite Review conducted by UNESCO determined that its funding of N.T.T.C. would cease as of December, 1982. According to a representative of the Ministry of Education interviewed by the researcher on the question of finances for SIMs, "It is difficult from this point [of time]" (NL-K).

No data concerning the financial support of SIMs were obtained from the three current members of the N.T.T.C. Board of Governors representing that body. None remembered discussing anything regarding SIMs in their meetings during the academic year 1981-1982. The fact that SIMs were never discussed during this period by the governing board is

a revealing piece of data in and of itself,

Training support. None of the subjects interviewed on this topic stated that any current training was going on or being considered for SIMs at N.T.T.C. One administrator stated: "The problem is that we haven't identified training on SIMs as such. For overseas study, one can train in SIMs but we're not necessarily telling them to do this" and "There's no money here for workshops now" (NL-A). This was stated despite the fact that a 1980 UNDP Project Revision document (D40) contained a budget line item for $2,500 (US) for training.

This reported lack was also identified by a second administrator who said that there were ". . . no special staff appointed to train others in writing SIMs" (NL-J). A third administrator agreed by saying there were ". . . no personnel for writing or training" (NL-C).

In none of the 1981-1982 Curriculum Committee (D2), departmental, or faculty meeting minutes (D1) was any mention of SIMs, let alone training for SIMs, evidenced. As for any SIMs' orientation in 1981 or 1982 by N.T.T.C. administrators for new faculty, one administrator said there was ". . . no formal orientation except in the Handbook for new staff. It's left up to him to get inquiries answered elsewhere" (NL-J). Another administrator stated: "There's no orientation formalized on SIMs. The department takes initiative to explain SIMs" (NL-A).

Personnel support. According to job descriptions read by the researcher (D43) N.T.T.C. personnel, particularly expatriate advisers to departments and Senior lecturers, were assigned the task of writing SIMs. However, three staff members of the IMRC which, as stated in the

historical review, had been printing SIMs up to the Spring of 1982, stated that only 1 lecturer had written a SIM since 1979 (NL-L, M, N). Only 13 SIMs, all of which had been written before 1979, had been published since then (NL-M).

Two of the 3 IMRC staff stated that they were committed to assisting any lecturers in their use or writing of SIMs. One mentioned ". . . if someone came for professional support then that would be done" (NL-L). Another said he was ". . . willing to do editing and assisting from the beginning with faculty" (NL-M). When asked if she had any plans to assist faculty at N.T.T.C. in SIMs, a third IMRC staff member stated: "Not SIMs particularly . . .," but if N.T.T.C. staff wanted help in general, she would be available (NL-N).

Material support. Despite the lack of financial support in the form of monies, there was some evidence of indirect material support. According to one IMRC member, if N.T.T.C. lecturers brought any SIMs for printing, the IMRC would ". . . usually charge materials' cost, but if they gave us paper, we'll throw in the work" (NL-M).

An administrator referred to "materials collected in the library" (NL-B) as reference books for SIMs. Another mentioned that a ". . . source of background material is USAID and the British Council through books" (NL-A) on SIMs, but he did not know of any provided by these organizations nor of any already in the library. The researcher checked the card catelogue of the N.T.T.C. library for resource books on SIMs but did not find any listed. Two general teaching technique reference books referring to SIMs were located on the shelves in the

library. Only one had been checked out by 5 people in the 1970's.

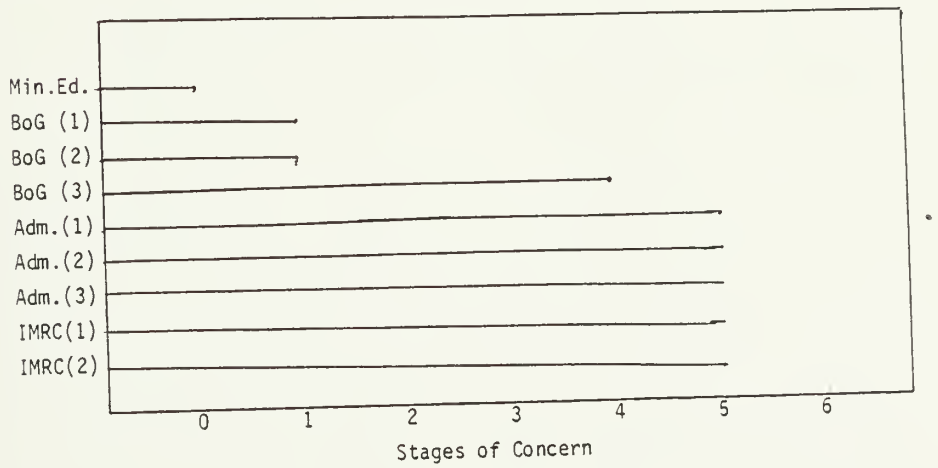
When IMRC left the N.T.T.C. campus in April of 1982 to be located elsewhere, some paper and a Gestener Printer were left in the old, IMRC room. As one N.T.T.C. administrator stated, the N.T.T.C. budget through the Basotho government did not include money for "paper and ink under printing" (NL-J) so that SIMs could not be printed on-campus. The faculty minutes dated January 22, 1982 sadly report that the operating costs of the College were -R58.03 (D1).

Personal support. Of the previous 10 subjects interviewed on the Social System Support Interview, 9 were also given the SoC Questionnaire in order to assess their personal concerns about SIMs. Table 7 displays the highest concern stage for each of the 9. An analysis of the N.T.T.C. administrators' and the IMRC staff's responses on the SoC indicates that these 5 subjects were concerned about collaborating with others on SIMs. Two members of the Board of Governors were concerned about information on SIMs, and one was interested in the consequences SIMs had on students. The Ministry of Education representative's highest concern was at the Awareness Stage. Since this individual was one of the original change agents, i.e. the first Director, but was currently in a very high position at the Ministry, this rating may be interpreted as a preoccupation with other matters and a distancing from SIMs despite an intimate knowledge of them.

As for other statements of support of SIMs by these subjects, data from the Social System Support Interview were enlightening. Two of the Board of Governors' members did not know what SIMs were, and, therefore

TABLE 7

Stages of Highest Concerns for Individual Representative Sources of Social System Support



could not comment on them. The third stated a strong commitment to them: "People need self-directed learning" (NL-H). The Ministry of Education representative also stated his belief in SIMs: "I knew it was a very, very strong method of teaching" (NL-K).

As for the IMRC staff, the data on personal support were mixed. One source stated ". . . one could learn by themselves but those [SIMs] I've seen need guidance" (NL-N). She went on to criticize them extensively. A second source stated that his commitment had changed in the past years: "We originally saw SIMs as a major point of contact with the faculty. We wanted them to be as good a product as possible" but, currently, he felt that ". . . internal problems at NTTC aren't conducive to producing SIMs"(NL-L). The third source stated that he was still committed to helping faculty with SIMs (NL-M).

Of the N.T.T.C. administrators, one stated that SIMs were ". . . excellent but [except] for those struggling with a language problem" (NL-B). A second said: "I saw there to be good use for these if incorporated into the classroom" (NL-C). The third was noncommittal (NL-A). To summarize his opinion of the personal support, the second administrator remarked that "There's no administrative support" (NL-C).

Summary of social system support. Examining the data analyses of each social system support indicator, it is evident that 1) financial support is currently nonexistent although proposed on paper in 1980 as $2,500 for training during the year 1982, 2) training support is apparent only in the advising by 2 of the 3 IMRC staff, 3) personnel support is limited to these same two IMRC staff members and to a contribu-

tion of free labor in the printing of SIMs, 4) material support as stated as paper, ink and a Gestener printer from the College but the reported deficit in operational costs as of January 1982 sheds doubt on this support, and 5) personal support is stated verbally by only 5 of the 10 representatives. To summarize, four indicators (financial, training, personnel and material) are minimal. One (personal) is mixed. The data conclude, therefore, that the social system support for SIMs at N.T.T.C. is at a low level.

Composite institutionalization level. As stated at the beginning of this section, a high level of institutionalization of SIMs would be indicated by 1) a majority of N.T.T.C. lecturers using SIMs according to the Configuration Pattern Checklist at either the Routine Level alone or at the Mechanical and Refinement Levels collectively, 2) a majority of lecturer concerns beyond the Management Stage, and 3) a high level of social system support. Reviewing Figures 5 and 6 reveals that, indeed, a majority of lecturers is not using SIMs nor is concerned about SIMs at what has been defined as a high institutionalization level. As stated in the summary paragraph on social system support, it too is not rated at a high level.

Instead, a minority of lecturers is using SIMs: 16 of the 57 lecturers (28%) at Levels 3, 4A, 4B, and 5; 14 of the 57 (25%) at the Routine Level. A minority of lecturers is at concern stages beyond the Management Stage: 17 of the 57 (28%). Only one (material) of the five social system support indicators is stated as existing, but its valid-

ity is questionable. Thus, having determined that a low composite institutionalization level would be demonstrated when 2 or more of the three indicators were low, it is reasonable to conclude that the status of SIMs is at a low institutionalization level at N.T.T.C.

Factors Influencing the Institutionalization Level of SIMs

In order to expedite the analysis of those factors influencing the SIMs' level of institutionalization, the following discussion is divided into three parts: 1) a brief explanation of how the factors were identified and a short listing of them, 2) a quantitative analysis of the frequency of each factor and of the sources citing each factor, and 3) a qualitative description of those factors mentioned most frequently and labeled hereafter as "critical factors." This qualitative description is supported by sample quotes from representative data sources.

Factor identification. As explained briefly in Chapter III, data on factors were collected through numerous instruments including the Factors Interview, the Level of Use Interview or Questionnaire and the Documentary Review Checklist. The collected data were then codified for "pieces" or phrases which indicated implicit or explicit factors. These pieces subsequently were categorized according to the four sensitizing concepts of 1) innovation, 2) adopter, 3) innovation process, and 4) social system characteristics.

Approximately 800 factor pieces were identified within the data collected. In order to codify them according to one of the four sensi-

tizing concept categories, the researcher conducted Patton's "dialogue" between the data and the four categories (1980, p. 36). It was found that all of the factor pieces did, indeed, fit into any one of the four categories. This was not completed, however, without some difficulty. Various sub-categories within the four different sensitizing concept categories appeared to overlap in their characteristics. A discussion of this dilemma follows shortly.

Having codified each factor piece according to the four concept categories, the investigator next sought verification of her analysis by requesting that a second coder assess the data. This second coder analyzed data from 12 of the 57 LoU and Factors Interviews. The correlation between his analysis and that of the researcher was .83.

Table 8 lists the factors identified by the analysis just described. These factors are listed according to the four sensitizing concept categories and the 38 sub-categories or general themes among these four. Where appropriate, paraphrased examples are included to represent the sub-categories. It is necessary to repeat that the identification of these sub-cateogries was not completed without raising particular questions, especially as to the external heterogeneity or difference between the four sensitizing categories.

For example, there appeared to be an overlap between the innovation process and social system categories within the sub-cateogry of administrative factors influencing the current institutionalization of SIMs. Should these be identified as innovation process factors in the 1980-1982 institutionalization period under development or should these

TABLE 8

Factors According to Categories and Sub-Categories

Concept Categories	Sub-Categories	Paraphrased Examples
INNOVATION CHARACTERISTICS	A. Writing Style	1. Too easy 2. Simple enough 3. Not written well
	B. Reading-Based	1. Too reading based 2.Positively reading-based
	C. Purposes	1. SIMs promote: a.learning by doing b.learning by self c.self-pacing d.self-motivation 2. SIMs relace, support or supplement a. the teacher b.the textbook c. the classroom topics 3. SIMs act as time-savers
	D. Content	1. Irrelevant, out-of-date 2.Theoretical/Practica 3. Many topics able to be covered
	E. Format	1. Booklet format including objectives, activities, self-checks,etc. 2. Pictures, graphs,etc.
	F. Students' Reactions	1. Readers vs. non-readers 2. Studious vs. non-studious 3. Like vs. dislike
ADOPTER CHARACTERISTICS	A. Orientation Reaction	1. Like vs. dislike 2. Included vs.Excluded
	B. First-Hand Knowledge	1. Lack of vs. thorough knowledge of SIMs 2. Previous (pre-NTTC) experience with SIMs as a teacher
	C. Second-Hand Knowledge	1. Own educational experiences as a stuoent (primary, secondary,or tertiary) 2. Pro-SIMs vs. Anti-SIMs
	D. Educational Philosophy	1. Subjective statements about own philosophy 2. Pro- Independent learning vs. Anti-independent learning
	E. Training in SIMs	1. NTTC-based training
	F. Personal Feelings	1. Cares vs. doesn't care about SIMs 2. Looking or not looking for information about SIMs
	G. Ability	1.Knowledge to use or write SIMs 2.Comfort or discomfort with own ability
	H. Other Obligations	1.Preference for or committment to other teaching method at NTTC 2.Job description statements

Continued

INNOVATION PROCESS	Initiation 1975-1977	A. Original Introduction/ Decision-Making	1. Reaction to original decision-making and introduction
		B. Development	1. International vs. national involvement 2. Production problems- cost, timing and amount expected
		C. Training	1. Consultancies 2. Faculty Meetings 3. Counterparts
		D. Change Agent	1. Personalities 2. Actions 3. Perceptions
		E. Evaluation	1. Lack of vs. reports of
	Implementation 1978-1979	A. Decision-Making	1. By Whom? 2. How made?
		B. Development	1. International vs. national involvement 2. Production oroblems 3. IMRC support
		C. Training	1. Consultanicies 2. Faculty Meetings
		D. Change Agents	1. Personalities 2. Roles
		E. Transition	1. Changes between periods of CTA's, Directors, International Advisers
		F. Evaluations	1. Reviews 2. Reports 3. Revisions
	Institutionalization 1980-1982	A. Development	1. Administrative Support 2. Costs 3.Writing Committments by whom? 4. IMRC support
		B. Training	1. Consultancies 2. Faculty Meetings
		C. Facilitators' Roles	1. Who? 2. Counterpart relationships
		D. Evaluations	1. Reports 2. Reviews
		E. Introduction	1. Faculty being informed initially upon employment
SOCIAL SYSTEM CHARACTERISTICS		A. Work	1. Teaching load 2. Advising load 3. In-service Responsibilities
		B. Time	1. Lack of time statements
		C. Morale	1. Lack of interest in College 2. Distress with apathy at College
		D. Administrative Support	1. Lack of administrative interest 2. Lack of administrative leadership on SIMs 3. Changes in staff positions 4. Lack of policies on SIMs
		E. Availibility of SIMs	1. Lack vs. presence of SIMs 2. Place for SIMs within library or department 3. Theft of SIMs
		F. Staff Shortage	1. Lack of enough lectuees 2. Lack of advisers
		G. Class Size	1. Increase in student enrollment
		H. Non-Availibility of Other Teaching Materials	1. Lack of or Access to other materials

be classified as social system factors in the sub-cateogry labeled as administrative support? It was decided that those factors concerning material support such as finances, training, etc. would be left in the innovation process category and those concerning personal support such as attitudes or policy-making would be left in the social system category.

A second problem area was in the coding of comments by sources about students' reactions. Initially, it was thought that these should be placed within the social system support category. However, in re-examining the data, it was found that these reactions were reported not by the students themselves but by faculty or administrators who were commenting on the characteristics of SIMs and how these faculty felt students viewed SIMs. Thus, such comments were assigned to the innovation characteristics category.

Quantitative analysis of factors. The quantitative analysis of these factors focuses on 1) the frequency at which factors are mentioned, 2) the type of influence (positive or negative) which factors are cited as having on the use of SIMs, and 3) the number and type of sources identifying factors. Following are two tables and a brief description of each table which present the quantitative analysis of factors influencing the institutionalization of SIMs.

Factor frequency and type of influence. Table 9 displays at length the frequency at which each factor category and its sub-categories were mentioned by sources, both human and documentary. These

TABLE 9

Frequencies of Factors Cited by Sources[a] According to Type of Influence

Factors	Total	Yes To Use	Yes Not To Use	Yes To Use/ Not To Use
1. Innovation Characteristics	190 + 7[a]	84 + 3[a]	59 + 4[a]	47
Writing	34 + 1[a]	6	15 + 1[a]	12
Reading	9	8	1	0
Purpose	61 + 2[a]	45 + 2[a]	3	13
Content	29 + 2[a]	10	8 + 2[a]	11
Format	21 + 1[a]	10	8 + 1[a]	3
Student Reaction	37 + 1[a]	5 + 1[a]	24	8
2. Adopter Characteristics	160	62	70	28
Orientation Reaction	3	3	0	0
1st Hand Knowledge	13	3	10	0
2nd Hand Knowledge	33	21	11	1
Philosophy of Education	27	23	3	1
Training in SIMs	4	3	1	0
Personal Feelings	47	9	17	21
Ability to Use and Write	14	0	11	3
Other Teaching Obligations	19	0	17	2
3. Innovation Process	191 + 91[a]	27 + 46[a]	148 + 31[a]	16 + 14[a]
A. Initiation 1975-1977	95 + 26[a]	12 + 16[a]	70 + 6[a]	9 + 4[a]
Decision Making	22 + 5[a]	3 + 1[a]	16 + 4[a]	3
Development	29 + 11[a]	2 + 5[a]	24 + 2[a]	3 + 4[a]
Training	22 + 5[a]	5 + 5[a]	16	1
Change Agent	18 + 4[a]	2 + 4[a]	14	2
Evaluation	5 + 1[a]	0 + 1[a]	5	0

Table 9 - continued

B. Implementa. 1978-1979	34 + 56[a]	7 +28[a]	25 + 20[a]	2 + 10[a]
Oecision-Making	2 + 8[a]	0 + 3[a]	2 + 3[a]	0 + 2[a]
Oevelopment	8 + 16[a]	2 + 6[a]	6 + 5[a]	0 + 5[a]
Training	9 + 9[a]	4 + 8[a]	5 + 1[a]	0
Change Agent	8 + 7[a]	0 + 2[a]	6 + 4[a]	2 + 1[a]
Transition	7 + 11[a]	0 + 2[a]	6 + 6[a]	0 + 1[a]
Evaluation	0 + 5[a]	0 + 3[a]	0 + 1[a]	0 + 1[a]
C. Institution 1980-1982	61 + 9[a]	8 + 4[a]	41+ 6[a]	5
Oevelopment	18 + 2[a]	3 + 1[a]	12 + 1[a]	3
Training	12 + 2[a]	2 + 1[a]	9 + 1[a]	1
Facilitator Role	10 + 1[a]	0 + 0[a]	9 + 1[a]	1
Evaluation	1 + 3[a]	0 + 2[a]	1 + 1[a]	0
Introduction	20 + 1[a]	3 + 0[a]	10 + 2[a]	0
4. Social System Support	130 + 8[a]	20 + 0[a]	100 +13[a]	10
Work	20 + 1[a]	5 + 0[a]	13 + 1[a]	2
Time	29 + 1[a]	1 + 0[a]	26 + 1[a]	2
Morale	7 + 4[a]	0 + 0[a]	7 + 4[a]	0
Administrative Support	17 + 2[a]	0 + 0[a]	16 + 2[a]	1
Availability Of SIMs	21 + 0[a]	2 + 0[a]	19 + 0[a]	0
Staff Shortage	17 + 0[a]	2 + 0[a]	12 + 3[a]	3
Class Size	11 + 0[a]	4 + 0[a]	6 + 2[a]	1
Non-Availability of Other Materials	8 + 0[a]	6 + 0[a]	1 + 0[a]	1

sources are identified as either human or documentary because of the noticeable difference in the factors they individually stressed. For example, factors within the innovation characteristic category were mentioned by a total of 197 sources, only 7 of which were documents. Factors supporting SIMs within this category were mentioned by 87 sources, 3 of which were documents. This differentiation is noted throughout.

What is particularly significant about Table 9 is the frequency at which specific general and sub-category factors are mentioned. For example, according to the lecturers and non-lecturers, factors within the innovation characteristic and innovation process categories were cited most frequently. However, if documentary sources are added, then the innovation process category gives evidence of the most frequent factors cited. What is also evident in this analysis of frequency is the type of influence each factor demonstrated. Some factors were cited as having a positive influence in the sources' opinion as to the use of SIMs at N.T.T.C.; other factors were cited as inhibiting the use of SIMs. Some demonstrated both influences. Examining Table 9 for those factors which support the use of SIMs, the reader will find that those within the innovation characteristic category are most freqeuntly cited by lecturers and non-lecturers. Those within the social system category are least mentioned by them. If documents are added, then the innovation process category increases the number of positive factors, but still does not contain as many as the innovation characteristic category.

As for the factors inhibiting the use of SIMs, those within the

innovation process category are most frequently mentioned by both human and documentary sources and those within the innovation characteristic category are least mentioned. Factors which were cited as having both a positive and negative influence on the use of SIMs at N.T.T.C. were found most frequently in the innovation characteristic category and least frequently within the social system cateogry.

Sub-category frequencies also add insight into the analysis of factors influencing the institutionalization of SIMs. It is interesting to note in Table 8 that the purposes of SIMs, included as a sub-category factor within the innovation characteristic category, are mentioned most frequently (N=45 + 2[a]) as positively influencing the use of SIMs. The factor of time within the social system category was mentioned most frequently (N = 26 + 1[a]) as inhibiting the use of SIMs. Other sub-categories of factors which are most frequently mentioned, and which will be referred to forthwith as critical factors, include the philosophy of education in the adopter characteristic category (N=23) and second-hand knowledge (N=21). The initial development of SIMs (N=24 + 2[a]) within the innovation process category and the students' reactions within the innovation characteristics category (N=24) are also cited frequently.

Sources and types. Table 10 displays the frequency of factors influencing the institutionalization of SIMs according to the source which cited the factor and how each factor influenced the source. For example, regarding the sub-category factor or critical factor of philosophy of education within the adopter category, the table displays that

TABLE 10

Frequency of Sources According to Factors and According to Type of Influence

Factors	SUPPORTIVE Total	User	Non-User	Non-Lect.	Document	INHIBITING Total	User	Non-User	Non-Lect.	Document	BOTH Total	User	Non-User	Non-Lect.	Document
1. Innovation Characteristic															
Writing	6	0	4	2	0	16	3	9	3	1	12	5	6	1	0
Reading	8	4	4	0	0	1	0	1	0	0	0	0	0	0	0
Purpose	47	12	19	14	2	3	0	3	0	0	13	4	9	0	0
Content	10	1	7	2	0	10	0	8	0	2	11	4	7	0	0
Format	10	2	5	3	0	9	1	3	4	1	3	0	0	0	0
Student React.	6	3	2	0	1	24	4	15	5	0	8	3	5	0	0
2. Adopter Characteristic															
Initial React.	3	0	2	1	0	0	0	0	0	0	0	0	0	0	0
1st Hand Know.	3	1	2	0	0	10	1	9	0	0	0	0	0	0	0
2nd Hand Know.	21	6	13	0	0	11	2	7	2	0	1	0	1	0	0
Philosophy	23	8	15	0	0	3	0	3	0	0	1	0	1	0	0
Training	3	2	1	0	0	1	1	0	0	0	0	0	0	0	0
Personal Feel.	9	5	4	0	0	17	4	13	0	0	21	6	14	1	0
Ability	8	3	5	0	0	11	2	8	1	0	3	2	1	0	0
Other Obligat.	8	1	7	0	0	17	3	13	1	0	2	0	2	0	0
3. Innovation Process															
A. Initiation 1975-1977															
Decision-Making	4	1	1	1	1	20	0	5	11	4	3	2	0	1	0
Development	7	1	0	1	5	26	5	7	12	2	7	0	0	3	4
Training	10	2	0	3	5	16	3	3	10	0	1	0	0	1	0
Change Agent	6	1	0	1	4	14	2	1	11	0	1	0	0	2	0
Evaluation	2	0	0	1	1	6	1	4	1	0	0	0	0	0	0
B. Implementation 1978-1979															
Decision Making	3	0	0	0	3	5	0	1	1	3	2	0	0	0	2
Development	8	1	0	1	6	11	1	4	1	5	5	0	0	0	5
Training	12	1	2	1	8	6	1	4	0	1	0	0	0	0	0
Change Agent	2	0	0	0	2	9	1	4	0	4	3	0	0	2	1
Transition	5	0	0	1	4	12	0	2	4	6	1	0	0	0	1
Evaluation	3	0	0	0	3	1	0	0	0	1	1	0	0	0	1
C. Institutionalization 1980-1982															
Development	4	0	2	1	1	13	3	5	3	1	3	0	0	3	0
Training	4	0	2	1	1	10	3	4	2	1	1	0	0	1	0
Facilitators	0	0	0	0	0	10	2	4	3	1	1	0	0	1	0
Evaluation	2	0	0	0	2	2	0	1	0	1	0	0	0	0	0
Introduction	3	1	2	0	0	17[a]	4	4	2	0	0	0	0	0	0
4. Social System															
Work	5	3	2	0	0	14	2	9	2	1	2	1	1	0	0
Time	1	1	0	0	0	27	4	20	2	1	2	1	1	0	0
Morale	0	0	0	0	0	11	1	2	4	4	0	0	0	0	0
Adm Support	0	0	0	0	0	18	3	7	6	2	1	0	0	1	0
Sims Availab.	2	2	0	0	0	19	2	17	0	0	0	0	0	0	0
Staff Shortage	2	1	0	1	0	15	3	9	0	3	3	2	1	0	0
Class Size	4	2	2	0	0	8	1	5	0	2	1	0	1	0	0
Non-Availab.of Other Materls.	6	1	3	2	0	1	0	1	0	0	1	0	1	0	0

[a] Includes 7 lecturers who within the interview stated that they had not heard of SIMs.

of those 23 sources which cited this factor as supporting the use of SIMs at N.T.T.C., 8 were lecturers who were users, 15 were lecturers who were non-users, none were non-lecturers (administrators, Board of Governors' members, etc.), nor documents. Of the 3 which cited this factor as inhibiting the use of SIMs, none were lecturers who used SIMs nor were they non-lecturers or documents. Indeed, 3 were lecturers who did not use SIMs. The one source who stated that his/her philosophy of education influenced him/her both to use and not use SIMs was a non-user.

Despite its detail, several insights or questions may be drawn from a guided perusal of Table 10. Focusing, for example, on the user/non-user columns, the reader may notice that the frequency of factors within both the innovation characteristic and the adopter categories often demonstrate that non-users are equally prone to identify the same factors supporting the use of SIMs as do users.

In contrast, concerning the factors inhibiting use, users and non-users tend to disagree in their identification of factors. Non-users identified more frequently than users factors within the social system category, particularly time and the non-availability of SIMs. Non-users also mentioned factors within the adopter characteristic category more frequently than users.

What is most striking, though, is the similarity between the two groups in their citing of factors within the innovation process and social system categories. Few of either group mention any supporting factors; most mention those which they find inhibiting. The only sub-

category factor for which this is not evidenced is that of work. Apparently, some users feel that their workload at N.T.T.C. influenced them to use SIMs, while most of the non-users feel the exact opposite. Certainly, the factor of time is considered equally by both groups as inhibiting the use of SIMs.

A summary examination of Table 10 indicates that various factors are mentioned frequently by all sources. For certain, non-lecturers identified with lecturers in seeing the factors of the innovation characteristics as supportive of use and those factors within the innovation process (particularly during the initiation period) as inhibiting. Non-lecturers also tended to agree with the lecturers as to the inhibiting influence of certain social system factors. While the documentary sources mentioned more factors within the innovation process category than other sources, this should be expected since most were reports on the progress of the College's development. Nonetheless, the type of influence those factors had on the use of SIMs differed considerably from those types mentioned by the human sources, particularly during the initiation and implementation periods. On the whole, documents cited more supportive factors than did the human sources. (Discussion of the implication of this follows in Chapter V).

Summary. In reviewing Tables 9 and 10, data analyses support the following conclusions:

1. Four general factors influence the use of SIMs at N.T.T.C: the characteristics of SIMs, the characteristics of the adop-

ters at N.T.T.C., the innovation process from 1975 to 1982, and the current social system within which SIMs exist.

2. Lecturers, non-lecturers, and documents identify factors within the two general categories of innovation characteristics and innovation process as being the most influential in the institutionalization of SIMs.
3. Lecturers and non-lecturers most frequently mentioned factors within the category of innovation characteristics as supporting the use of SIMs.
4. Lecturers and non-lecturers most frequently mentioned factors within the category of innovation process as inhibiting the use of SIMs.
5. When factors identified by documents are added to those mentioned by human sources, the category most frequently mentioned as supportive of SIMs is that of the innovation characteristics. The most inhibiting is the category of innovation process.
6. Factors identified within the social system category are seen as least supportive of SIMs and those within the innovation characteristics category are seen as least inhibiting.
7. The following sub-category factors, entitled critical factors, are cited by sources as the most supportive of SIMs:
   A. Purposes of SIMs
   B. Philosophy of Education
   C. Second-hand Knowledge

8. The following sub-category factors, entitled critical factors, are cited by sources as the most inhibiting of SIMs;

   A. Initiation Period

      i. Decision-Making
      ii. Development
      iii. Training
      iv. Change Agent

   B. Social System

      i. Time
      ii. Availability of SIMs
      iii. Administrative Support

   C. Innovation Characteristic

      i. Writing
      ii. Student Reaction

   D. Adopter Characteristic

      i. Personal Feelings
      ii. Other Teaching Obligations

9. Users, non-users, and non-lecturers generally tended to identify similar factors which supported the use of SIMs but disagreed concerning those factors which inhibited the use of SIMs.

Qualitative summary. The qualitative summary of data which follows is composed primarily of quotes from human and documentary sources representing critical factors influencing the current institutionalization level of SIMs. Critical factors are defined here as those actions or attitudes which 1) were identified by a substantial number of sources (N=14), 2) were indicative of a "primary cause-secondary effect" relationship between factors, and 3) were mentioned consistently by sources regardless of their roles or length of exposure to SIMs.

The reader will find, for example, that one critical factor is the procedure by which SIMs were developed during the initiation period (1975-1977). Twenty-six (N=26) sources reported that the writing of SIMs by expatriates rather than by Basotho inhibited the use of SIMs. This factor is considered a primary-cause factor. It is considered as such because the consequent impact of this development procedure was that some sources 1) found SIMs to be written in an inappropriate style (N=16) and 2) felt a personal resentment or apathy toward SIMs (N=17). These are considered as secondary-effect factors. While both primary and secondary factors are contained within the rubric of critical factors, their uniqueness and their interdependency must be recognized by the reader in order that a wholistic evaluation of SIMs may take place.

This qualitative summary is divided into two parts: the first presents the eleven (11) critical factors cited as inhibiting the use of SIMs and the second presents the three (3) critical factors cited as supporting the use of SIMs. The number of sources identifying each critical factor is stated before the discussion and is divided into human (H) and documentary (D) categories as cited in Table 9.

Factors inhibiting the use of SIMs.

INNOVATION PROCESS

Initiation: 1975-1977

Decision-making and introduction: H-16, D-4. As stated in the historical review of SIMs, the decision to select them as an instructional method was made by the first CTA and the first Director of N.T.T.C.

These two discussed SIMs with a second UNESCO adviser and his Basotho counterpart, presented the idea to the Curriculum Committee and the faculty, and finally proposed it to the Board of Governors as a policy. At no point in this research was it found to be documented nor cited by human sources that the national Basotho staff were fully included in this decision-making.

Instead, data from members of the original staff indicate that Basotho felt excluded. A current administrator who was at the College during this period stated: "The decision . . . didn't really emanate from us. It emanated from our advisers . . . many people from the U.S. and Britain" (NL-A). One of the original, and current, lecturers bluntly said that ". . . the powers that be decided: CTA and expat experts, not the Basotho" (L-13).

Other data describe the method by which SIMs were introduced. As quoted in the historical review section of this Chapter, the Director said that he had to "twist" arms (NL-K) and the CTA mentioned that he had to "control" staff into SIMs.

Commenting on this exclusion from the decision-making process and on the pressure tactics of the administration, data sources indicated feelings of resentment toward both actions. As one original lecturer remarked ". . . they [SIMs] weren't introduced. They were just kind of thrown on you . . ." (L-13). Another source observed that "One of our weak points at this time was that the whole lot [of innovations] were imposed" (NL-D).

Representatives from both the Basotho and international staff

stated that they also found it difficult during this time to voice their concerns about SIMs. Consequently, they reacted to SIMs with either silent resentment and/or passive acceptance. Several statements reflecting these attitudes follow:

> People who had negative ideas weren't able to muster themselves to refute him the CTA . . . the Basotho were fearful (NL-X).

> There was some resentment here at the College about the general approach and the way things were introduced. So we weren't really keen to catch up on anything talking about self-instructional materials (L-41).

> The Basotho staff not knowing much about teacher training didn't know better and so accepted at first but never really accepted (NL-D).

Concern was indicated by several sources about the amount of innovations introduced initially along with the SIMs. A Basotho lecturer remarked that: "I think there were so many innovations that one was inclined to feel that I can't cope with learning all these innovations" (L-22). Another mentioned that ". . . there were too many new things to begin with. If we had taken them step by step . . . it would [have] helped" (L-21). The impact of these feelings on SIMs was reflected in the remark that "There were so many new things for Basotho staff that the first thing to be shirked off were SIMs" (NL-X).

Development: H-24, D-2. As stated in the historical review, the procedure for developing SIMs was that international or expatriate staff would be responsible for writing SIMs after collaborating with national staff on the content. National staff were encouraged to write SIMs but

were held primarily responsible for classroom teaching (D10, D43).

Data demonstrate that this procedure caused a considerable amount of resentment on the part of the Basotho staff. This resentment was, then, often cited as a factor influencing the current status of SIMs. First, the assumption upon which this procedure was based was found to be offensive. As a Basotho lecturer stated:

> . . . it was assumed that Basotho staff were only learners and expatriates were advisers, but they did more than just advise. They would think they were advisers and knew everything. They didn't consider whether Basotho could do it. Sometimes they took it for granted that they could write. There were clashes between some ex-pats and Basotho (NL-V).

Secondly, the manner in which the procedure was carried out offended the Basotho. One expatriate lecturer involved in the actual development pointed out that:

> It was made known to the Basotho that expatriates were experts . . . you [Basotho] are teachers; let us expats develop materials for you to use in the classroom. It was them and us. We'd meet with the CTA as expatriates. An enormous gap developed. He would put up a memo on the board announcing an expat staff meeting. The local staff was not interested because of this (L8).

Thirdly, several Basotho mentioned that they were excluded from the selection of SIMs content. One lecturer stated unequivocably that: "In writing of the SIMs, there was not any collaboration . . . in the department on the content of SIMs" (L13).

Whether excluded from actually writing SIMs or from advising on their content, several sources were also critical of this development procedure because of its impact on the quality of SIMs. These sources stated that, in their perception, the expatriate staff didn't under-

stand the Basotho student or curricula and, therefore, couldn't develop SIMs appropriate to N.T.T.C. One lecturer referred to the:

> . . . cultural differences on the part of those who were involved in establishing the college, between expatriates and students . . . when it came to writing, he/she couldn't have known for whom he was writing, their level or standard (NL-V).

Another mentioned that:

> There was a resentment between expats and nationals . . . that those writing weren't teaching and didn't know the people for whom they were writing (L13).

A third Basotho lecturer suggested that "The ideal thing would have been for us to write them. We know the type of student and level" (L31).

A final criticism mentioned by sources of this development procedure concerned the speed by which SIMs were expected to be, and were, produced. As stated already in the historical review, a lecturer was quoted within the minutes of a faculty meeting as commenting ". . . on the speed with which the units were being produced. She hoped that quantity did not surpass quality" (D1, February 9, 1976). This concern is again mentioned in the consultancy report of the UNESCO adviser who conducted the 1977 SIMs workshop. The report states:

> . . . fears about the quality and purpose of SIMs were real and justified. With the advantage of hindsight, it is an inescapable conclusion that the rapid large scale and diversified introduction of self-instructional materials was ill-advised . . . a good deal of work had to be done to raise them to an appropriate standard (D18).

Training: H16. Between 1975 and 1977, various forms of formal and informal training were proposed for N.T.T.C. staff by the administration.

These included information dissemination sessions at faculty meetings, counterpart discussions and formal workshops. Data collected from both Basotho and expatriate sources indicate that most of these activities focused on upgrading the skills of the developers, i.e. expatriates and not on assisting the users or potential developers, i.e. Basotho. While this was not evidenced in documents as the direct intention of the administration, it became an unavoidable consequence in light of the different roles Basotho and international staff were assigned in relationship to SIMs.

Evidence of this consequence is that both Basotho and expatriate sources cited a lack of training as a factor influencing the current status of SIMs. One stated: "We didn't have a serious time in order to really understand the idea why we use SIMs, how they are used, and how they were written" (L31). Another summarized by saying "[We] just haven't had any experience and training . . . so we don't use them" (L13).

This is not to say that training was not offered. What the data indicate, however, is that this training was perceived by sources as inappropriate for them. The following sample quotes present descriptions of and reactions to these training activites.

First, regarding the discussion of SIMs at faculty meetings, several sources remarked that these discussions were more lecture and production-oriented than training-oriented. One original lecturer portrayed these faculty meetings as times when:

> . . . [the CTA] gave a few marathon three-hour monologues (called 'seminars') . . . about how people might write SIM and what they might use them for; but he never . . . defined any systematic criteria other than those derived from an imaginary production line (NL-U).

Minutes from these meetings give evidence to support this portrayal. Several (D1, November 17, 1975; January 26, 1976; February 9, 1976; May 5, 1976 and August 9, 1976) record that the SIMs "rate of production" was discussed more often than their purpose or method of use.

Counterpart discussions, another form of training, were not considered productive. An original lecturer remarked with regret that:

> Theoretically, it was an excellent idea. In practice there was not the full support and the individuals got their roles mixed up. . . . Unfortunately, expats spent more time in classrooms than they should have (NL-Q).

A Basotho lecturer observed that: "They [international staff] were supposed to help us, but it didn't happen because of time. You were teaching too much" (L31).

The only formal training during this period was cited as not being well-received by the Basotho staff. This activity was the 1977 workshop conducted by a UNESCO consultant. Although the purpose of the workshop was ". . . to assist the multinational staff in the development of SIM, . . . the organisation of the writing of SIM and the general strategy for the use of the materials were considered" (D18). Data from sources who attended the workshop reveal that, again, the developers of SIMs were the primary recipients of any training.

For example, a Basotho participant remarked that the content of the workshop was inappropriate for her:

> I think the most important thing [was] to explain the importance of self-instructional materials . . . [instead] he spent most of the time showing us how to go about the techniques and references . . . if you have not been won over [to] the idea of using SIMs, [you] don't take note much of them (L12).

As a whole, the data concludes that the Basotho staff were disinterested in the workshop. A current administrator remembered that:

> Basotho attended the _____ [consultant's] seminar but they didn't seem enthused and were not involved. In small groups, only the person who developed SIMs spoke to _____ [the consultant] (NL-B).

The follow-up for this training was also cited as meager, if existent at all. A lecturer reported ". . . follow-up was sporadic. There was a nucleus of interest amongst those people previously involved, only the expats" (L8). Another source remarked that there were ". . . only handouts, guidelines, nothing formally . . ." undertaken after the training (NL-T). It has already been mentioned in the historical review that the suggestions offered by this consultant in his final report had not been followed as of a year later.

Change agent: H14. As described in the historical review and in the previous critical factor sections, the first CTA and first Director were major catalysts in the initial decision-making and introduction of SIMs. Data from both human sources and faculty meeting minutes suggest that the CTA took on a greater administrative role than the Director in the development procedure and training activities for SIMs. No sources reported that the personal attitudes or actions of this Director contributed to the current status of SIMs at N.T.T.C. In contrast, how-

ever, several sources remarked that the personality and actions of the first CTA were influential. Following are samples of these remarks.

The character descriptions of the first CTA are rather conflicting. His ideas were labeled as "bright" (L22), "important" (L41) and "excellent" (NL-Q). His advocacy of SIMs, and of N.T.T.C.'s development as a whole, had incredible impact. To have prompted a staff to produce 55 SIMs within the first year of a college's existence is a definite achievement. To have taken a college from one staff member (himself), no students and no curriculum to a college with 12 staff members, 79 students and numerous curricula within a year is even more of a noteworthy feat. Data indicate, however, that the controversy around this individual was that despite the often offensive manner of his methods, they worked--at least in the short run. As a Ministry of Education official, related to N.T.T.C. during this time period, stated:

> . . . the UNDP Secretary said _____ [the CTA] was 'steam-rolling', but [it was] in the right direction. We thought it was very good. Within a short time, a lot was done (NL-W).

Regardless of their efficiency, these actions were often not condoned. Indeed, data portray these actions and the CTA, himself, as autocratic. Several sources cite him, rather than the first Director or other expatriates, as the originator of SIMs. One lecturer observed: "It was _____ [the CTA] who brought all the ideas and told us all those things" (L31), and another remarked that "It was _____ [his] dreams and hopes" (NL-X). This CTA is also described by sources as the one who "presided over" (NL-R) the development of SIMs, who (in his own

words) had to "control" (NL-O) the writers, and who had these writers "under the thumb" (NL-U).

Additional data portray him as an authoritarian. For example, as already stated, "People who had negative ideas weren't able to muster themselves to refute him" (NL-X). His leadership style was described as affecting the entire College's environment, such that:

> The official psychology of the N.T.T.C. was narrowly, dogmatically, and unfashionably behavioristic; it had all the defects of self-assured authoritarianism with none of its redeeming clarity (NL-U).

Data within the previously discussed critical factors demonstrate the impact of this CTA's actions on the Basotho staff, particularly, but also on the international staff. The policies he, to a great extent alone, developed were often criticized by sources. At times, these criticisms were voiced to the CTA at faculty meetings (D1, February 9, 1976) or in memos (D4), but no evidence of his acknowledgement was cited. The data concludes that this individual was perceived as a major, or primary-cause, factor in the early years of SIMs. As the description of critical factors continues, his impact on the future of SIMs through secondary-effect factors will be evidenced also.

INNOVATION CHARACTERISTICS

Writing: H15, D1

The development procedure just described in which SIMs were written by international staff and not Basotho was identified in the introduction to this section as a primary, critical factor. In reviewing the

data describing the writing style of SIMs, it became evident to this researcher that due to this development procedure, the writing style of SIMs was influenced. Indeed, it was cited by sources as a critical factor also.

First and foremost, the vocabulary of the SIMs was viewed by sources as inappropriate. One lecturer described in length her relationship to an expatriate adviser who wrote SIMs in her department and how she found his work:

> The first SIMs that were produced were by, I think, in 1975, one _____ expert writer. . . . In his students' presence we did use them a bit so that he'd be sure that we had done it. . . . But after he left, we stopped using them. That is for the reason, one, that the SIMs were too complex, so that even for us we had to refer to them now and again to explain certain terminology (L12).

Another lecturer found that even the basic words were alien to students and that students wasted their time trying to define them:

> We have problems with language here. SIMs were written in a language that is alien to the country. And some of them [students] may understand. Some of them may not except that they usually turn to the glossary part which means they often take a little longer time to read through the SIM because of difficulties in understanding the language (L15).

A third felt that since English was a second language for students that these vocabulary problems were inevitable as long as SIMs were written in English. She observed:

> . . . apparently, language is the biggest problem, English being our second language . . . in which case, SIMs wouldn't work as such. But otherwise, if we could somehow do away with this problem of language, the written language and spoken language, then one would expect them to be of great value (L33).

Student Reaction: H24

Several sources related the factor of how SIMs were written to the factor of student reaction. Many felt that, as one lecturer stated, ". . . the students have no idea what they're [SIMs] talking about. They can't really use it" (L42). Due to this, and often the content topic, sources often said that students found SIMs ". . . very, very dull and boring to them" (L12).

Primarily, however, sources which cited this as a critical factor remarked that, culturally, students were not prepared to learn through SIMs; for they were not accustomed to such an instructional method. One lecturer explains this observation in detail:

> . . . in Africa, our students still feel they need the teacher. . . . I spent a lot more time on the SIM group than on the group I teach mainly because they need me and they need the human element . . . you just can't give them the materials and say go and do it. They still have to have the personal influence. You tell them what to do and they feel not quite happy. This is cultural (L20).

A second lecturer supported this observation in her comment that:

> . . . our students do not have enough confidence to read and understand. Maybe it's because we are a verbal nation that we have to see and hear somebody to think that we really assimilated it . . . in the absence of contact, there are some students who SIMs are not for at all (L21).

Other sources remarked that students became too dependent on SIMs for information and were not encouraged to look elsewhere or to be independent in their thinking. As one lecturer stated: SIMs ". . . tended to make students lazy to do things their own way. They depended so much on the SIMs that they could not express themselves from the SIMs"

(L38). Another remarked that SIMs could ". . . make narrow-minded students sometimes if they are not used to reading to supplement the SIMs" (L14).

In summary, due to the style in which SIMs were written and to the students' reactions as perceived by the sources, several of these sources indicated that the characteristics of SIMs, per se, were factors influencing the discontinued use of SIMs. The vocabulary was too difficult in that it was either too wordy or alien. The reactions of the students were cited as either boredom or rejection.

SOCIAL SYSTEM

Time: H26, D1

This critical factor was mentioned most frequently by sources as inhibiting the current status of SIMs. Very simply, sources stated that they did not feel there was enough time available at the College for, primarily, the development of SIMs, but also for its use. Most data were brief statements such as "I don't have the time" (L2) or ". . . there is that time factor . . ." (L37). The sample data which follow represent those pieces which describe why sources felt time was a factor.

Due to a shortage in staff and the increase in student enrollment referred to in the historical review, many sources felt that they didn't have enough time either to develop or to use SIMs. As one remarked:

> . . . because of understaffing, we haven't developed any more SIMs. My predecessor in our department developed a

> few SIMs. Even then she was able to do this because the numbers [of students] were then very low. . . . But since the College has grown, we haven't had time to develop these (L22).

Another added that, as civil servants, faculty at N.T.T.C. were required to teach during their vacations which then restricted their time to work on SIMs. He stated that:

> It is very difficult for one to find time to sit and really try to think and organize learning material like that . . . teaching hours are so long. Now during vacations we have to do in-service . . . so it's not been very easy to produce anything (L24).

Most faculty referred to their workload as keeping them from using SIMs. One summarized by saying:

> I am so much overworked that I have no time to even be doing any other thing out of teaching . . . there's absolutely no time to spend on SIMs (L29).

Whether it be caused by a shortage of staff, the increase in student enrollment, the status of civil service or the workload, this critical factor was mentioned more often than any other as having a negative influence on the current institutionalization level of SIMs.

Availability of SIMs: H19

As with the data on the critical factor of time, the data describing the availability of SIMs were simplistically stated by sources. Most merely stated that either "SIMs are not there" (L11) or "We don't have any" (L12). To confirm these observations, it is appropriate during this discussion to refer again to Table 3 in which the number of SIMs available within the library for teacher and student access is

cited and to cite data from the SIMs Report Sheet (Appendix B).

Table 4 also indicates that many departments have a very small amount of copies for certain SIMs' topics. The Math, Professional Studies, and Social Development Studies are three departments for which SIMs on one topic are completely missing. After collecting data on the SIMs Report Sheet about each SIM, this researcher found that of the 199 topics covered by SIMs, 9 had no copies available, and 37 topics had 5 or less copies available. Thus, approximately one-fourth of the topics covered by SIMs had 5 or less copies.

Administrative Support: H16, D2

The historical review of SIMs and the social system support analysis of SIMs' current institutionalization level both give evidence that the current administration at N.T.T.C. has not recently supported nor is currently supporting SIMs. Sample data within this critical factor represent the sources' perceptions of support outside of financial, personnel, training or material commitments. Thus, the following sample quotes describe the administration's policy and personal support.

For example, several sources indicated that the N.T.T.C. administration did not care for the future of SIMs. One lecturer bluntly stated: ". . . NTTC and IMRC, she doesn't care about SIMs. It's not very important to have more on a topic . . . you come and you disturb them . . . they are not interested" (L11). Some lecturers believed that the administration didn't really understand SIMs. One said:

> I think it may be a lack of foresight on the importance of SIMs. That is, the administration is not aware [of] how important these might be to students L56).

Another remarked that:

> We had a seminar here on SIM. This was 1977 or so and there was quite a divided view on the SIMs. Some of the professionals felt SIMs are supplementary and they had strong views about that. And I've told you my view that I personally think the SIMs should replace the teacher. So this makes it difficult. I have a class and I'm sitting in my office and my boss comes and says: 'What are you doing here? You should be teaching.' That creates a problem (L20).

This lack of understanding was confirmed by other sources but referred to as a lack in administrative policy. One lecturer complained that:

> There's no guidance as to how the College would like the SIMs to be . . . there should be some standing instruction that this is what we expect. There's nothing like that (L57).

A final comment by one current lecturer represents the attitude this researcher observed on the part of the administration toward SIMs but which she was unable to find in other data pieces. The lecturer stated that she no longer used SIMs because: "I think it's just the way the College runs. You know, who cares what I do and that kind of thing?" (L33).

ADOPTER CHARACTERISTICS

Personal Feelings: H17

The data identified within this critical factor describe the personal opinions or attitudes that current lecturers have toward SIMs. In addition, data are cited from administrators, original developers

and lecturers on the attitudes they had perceived in past or current lecturers. All of the sources quoted stated that they felt these attitudes strongly influenced the current status of SIMs.

Several sources remembered feeling that the original Basotho staff were not very interested in SIMs. One original developer remarked that: "A few Basotho were talking about it: what's the use of it all, not being able to see where it was going" (NL-X). Another felt that the original faculty ". . . were afraid of these things, too much work . . ." (NL-K), and a third stated that "SIMs were hard work; many people were lazy [and] teaching was regarded as more fun" (NL-R).

The attitudes cited by the original Basotho lecturers, themselves, confirm that, indeed, they were hesitant about SIMs. One remembered that:

> The staff was reluctant. We didn't have well-experienced staff. . . . They regarded education as a simple process. Teaching is an easy job: you just write on a chalk board, ask students questions, and give assignments. . . . SIMs just didn't click in their minds (NL-V).

A second Basotho remarked that:

> We were a bit apprehensive. We rather resisted. We didn't understand exactly what was expected . . . we were used to traditional teaching, standing in front of a class, reading from a book (NL-A).

These kinds of personal feelings were also cited by and about current faculty, Basotho and international. Several Basotho simply stated that ". . . it's just a lost interest or desire" (L50), or that ". . . a lack of interest possibly could have come into this" (L8). This latter source even said that he was ". . . cold to these SIMs" (L8).

Such personal feelings also described the basic lack of energy on the part of the current faculty and administration toward not only SIMs, but toward the entire College. One lecturer, in response to the question about what was influencing her current use of SIMs, simply quipped: "Why bother?" (L33).

Other Teaching Obligations: H17

Several sources indicated that their personal obligation to other teaching methods or programs deterred their use of SIMs. Some of these sources were expatriate advisers who found a need to prepare materials other than SIMs. One felt that structured teacher-directed instructional materials in a workbook format would assist his colleagues more than SIMs (L8). A second saw his obligation to be in the development of syllabi and teacher-directed materials (L53). Three additional advisers were completing a new program of studies and indicated that they could not see a place for SIMs within it.

This pattern of focusing on other teaching methods or obligations was cited also within the data collected from Basotho sources. One stated that she was ". . . working on the syllabus and a course of _____ _____, so it's not possible to use the self-instructional materials" (L16). Others wanted to continue to use their own instructional materials:

> We have made booklets and they are supposed to be used by students with teachers. And so, in this case, there's not much room for students to work on their own (L33).

Some didn't want to use their own materials and preferred SIMs but

found that "Everything in this department is designed in just such a way that you can't use SIMs. You're restricted by the curriculum" (L54).

Factors influencing continuation.

INNOVATION CHARACTERISTICS

Purposes: H45, D2

Data indicate that three purposes of SIMs were considered by sources as influential in the continued use of SIMs: first, that SIMs promoted self-directed learning; secondly, that SIMs could supplement the activities within classrooms and could replace teachers; thirdly, that SIMs could be time-savers.

For example, SIMs were viewed as instrumental in helping students to learn independently. As one lecturer simply stated: "Self-instructional materials can be used by students on their own . . ." (L54). Learning on one's own was also seen to promote self-confidence, and one lecturer felt this was important:

> . . . students will attain some skill and confidence in getting things done by themselves . . . and probably that is the essential factor for SIMS (L6).

Sources also supported the idea that SIMs supplemented classroom teaching:

> There are a lot of things students don't understand when you just lecture them. . . . SIMs give them a chance to do the assignment related to the topic and I think they better understand the topics (L16).

As a time-saver, SIMs were seen assisting teachers if they were

rushed to cover a lot of topics or were absent from the class. As one commented:

> . . . if I feel the amount of time given for a course, a topic, was not enough and there is a SIM that can do supplementary work, then I use a SIM. . . . If I am absent on some urgent business and I know that the topic I was supposed to handle the following day . . . can be covered partly by a SIMs so I introduce a SIMs and let students go ahead in my absence (L40).

Finally, SIMs, once developed, were viewed as time-savers:

> . . . you take a long time preparing SIMs but afterward they really save a lot of time and energy because once they are done, then, many people can benefit from them (L14).

A current lecturer remarked that the potential for SIMs as a time-saver for all Lesotho teachers influenced him:

> Now, because of manpower problems, we cannot have lecturers all over. But the idea is to place the SIMs in these centers [the distance teaching, in-service centers] so that students can just go there and go through them. It really replaces us because we can't; all lecturers cannot be all over the country at the same time. But if you have a topic on SIM, you can. Every teacher in Lesotho can go through that material (L20).

ADOPTER CHARACTERISTICS

Second-Hand Knowledge: H21

The data here describe the background experiences of sources in either primary, secondary or teacher training which sources cited as factors influencing the use of SIMs. Several sources stated that, since SIMs had not been present in their educational experience, they recognized how that experience had been lacking. One lecturer stated:

> . . . the teachers who taught us in primary school were not able to teach every pupil in the class. So much so that most of the pupils suffered. I experienced that because when I had a problem maybe the teacher would not be able to come to me to explain. Whereas if SIMs had been written, . . . I would have been able to understand much better (L17).

In describing her experience in high school, another lecturer remarked that: "If I had had them, I think I would have benefited a lot . . . we went back to the textbook and didn't understand . . ." (L23).

Several sources remarked that their educational experience led them to use SIMs since that experience contained some type of activity similar to SIMs. The first Director, himself, was an advocate of SIMs for this reason. He related that: "Because all my higher education was through correspondence, through distance education, I knew it was a very, very strong method of teaching" (NL-K). Other sources related similar attitudes toward SIMs based on their own educational background. One explained how he had come to believe in self-directed learning:

> I left school at Standard 6 and I did J.C. all by myself. And I didn't even do it through a correspondence school. I just bought the books and read (L6).

He went on to relate that SIMs, for him, encouraged this same type of self-directed learning for his own students.

Philosophy of Education: H23

While the critical factor of "purpose" included data as to the functions for which sources chose to use SIMs, this critical factor represents data on the sources' personal rationale or philosophies of education which influenced them to value the functions of SIMs.

For example, a lecturer who used SIMs because they assisted students in being self-motivated stated:

> My philosophy of education and, indeed, about life means that people should be able to work, to love work, and to study is also to work. And I don't think it's a good idea to keep feeding people all the time with information . . . SIMs does help in that way (L57).

Another stated that she believed in education for independence:

> I feel the whole philosophy of education revolves around inspiring a teacher to learn on his or her own. So, in that light, I would say SIMs was a good idea (L3).

Many sources remarked that their personal philosophies of education were very much in line with those represented by SIMs. These philosophies included the beliefs that ". . . education is maturing a student by making him independent" (L5) and that ". . . students learn best by doing" (L20). Additional examples of philosophies cited by sources as factors influencing the use of SIMs are very similar to those already cited. It was evident that these philosophies evolved out of a common belief on the part of the sources that education was meant to create an independent and self-motivated thinker.

Conclusion

In summary, it is evident from the data analyses presented in this chapter that SIMs were not institutionalized at N.T.T.C. as of 1982 due to inhibiting factors within the innovation process and social system. Despite the evidence that the inherent characteristics of SIMs were supportive of use and that adopter characteristics were equally supportive and inhibiting, SIMs were not able to survive. The implications of

this analysis and recommendations for those interested in innovation institutionalization and research now follow in Chapter V.

C H A P T E R V

CONCLUSIONS AND RECOMMENDATIONS

This study examined issues surrounding the institutionalization of innovations within teacher education programs in developing countries. Literature was reviewed on both the types of innovations within teacher training institutions in developing countries and on representative innovation research models and theories. Subsequently, from these bodies of literature, a Wholistic Innovation Model was proposed and implemented within a case-study research design which evaluated the innovation of self-instructional materials (SIMs) at the National Teacher Training College (N.T.T.C.) in Lesotho. Data collected were analyzed as to 1) the institutionalization level of SIMs at N.T.T.C. and 2) the factors influencing that level. This final chapter will summarize the findings of that data analysis while referring to the literature previously reviewed. The chapter will conclude with recommendations for teacher educators, educational planners, change agents, and researchers with regard to the process of institutionalization and the study of innovations.

Summary of Findings

The case-study data analysis presented in Chapter IV indicates that the innovation of self-instructional materials at the National Teacher Training College of Lesotho is not institutionalized. Only a minority of lecturers (N=16) are currently using SIMs, only a minority

of lecturers (N=7) and non-lecturers (N=6) involved with SIMs are concerned about the consequence of SIMs for students or collaboration with others on their use, and only a minimal financial, personnel, training, materials and personal support from the educational system is evident. Examination of the data concerning these three indicators of institutionalization as defined in this study (use, concern, and social system support) yields the following summary of findings.

Use. Data collected from the interviews with lecturers using SIMs reveal that use varied considerably in quality and quantity. In response to questions on a Configuration Pattern Checklist which listed eight characteristics within the use of SIMs ranging from the percentage of student contact time spent on SIMs to the percentage of curriculum devoted to SIMs, users varied in their descriptions. Some stated that they used SIMs once a week; others indicated using SIMs once a term.

Half of the users were lecturers hired during the initiation period of SIMs' innovation process (1975-1977). The number of users per successive year following 1977 decreased steadily. Data on user departments and on the availability of SIMs within these departments did not permit conclusions as to the relationship between users, departments or SIMs' availability.

In analyzing the non-user population, data indicate that lecturers were divided into three groups based on their familiarity with SIMs. One group contained former users (N=17); the second contained those individuals who had never heard of SIMs (N=8); the third contained lec-

turers who had heard of SIMs but had never used them (N=16). The former-user group included half of those lecturers hired within the initiation period.

These data suggest that the use of SIMs was an individualistic rather than a collective decision made by lecturers. Studies by other innovation researchers support this suggestion. For example, Hall found within his Concerns Based Adoption Model (CBAM) research that ". . . change is a personal experience . . ." in which the individual adopter may be the focal point of an innovation's success or failure (Hall, 1979, p. 3).

Concerns. The concerns expressed by lecturers and non-lecturers on the Stages of Concern questionnaire varied between 1) users and non-users, 2) lecturers and non-lecturers, and 3) various types of non-lecturers. Within the user/non-user population, most users were rated at concern stages which indicated that they were either seeking information about SIMs or were refocusing their use. Most non-user concerns indicated a disinterest in or refocusing in regard to SIMs. For lecturers and non-lecturers, lecturers were either disinterested or seeking information while non-lecturers were concerned about either seeking information or collaborating with others on SIMs. Within the non-lecturer population itself, those in N.T.T.C. or IMRC administrative positions were interested in collaborating; Board of Governor members were interested in seeking information; and the Ministry of Education representative demonstrated disinterest. These comparisons between population groups sug-

gest that the concerns surrounding SIMs varied considerably and according to the position each source held in relation to SIMs. The implications of this suggestion are noted below.

Social system support. As detailed in Chapter IV, the current financial, material, personnel, training and personal support of SIMs was minimal. Token gestures of paper, ink, advice, and free labor were demonstrated, but money for training was not evident in data from interviews or budgetary documents. Personal support was verbalized by several administrators but not by the one IMRC staff member designated as the coordinator and editor of SIMs.

While not conclusive, the data suggest that these five indicators were interrelated. Without funding, training and material support was tenuous. Without personnel and personal support, requests for funding appear to be viewed as low priorities. Since the population of sources for these data included the decision-makers of the college (administrators and Board of Governor members), it may be suggested that those responsible for overseeing SIMs have either not been able to or have chosen not to support them.

Research method. Data collected to measure the use of SIMs suggest that the instruments used in this study were appropriate. The Configuration Pattern Checklist did account for the quality variation in the use of SIMs, and the data recorded on the SIMs Report Sheet indicated the quantity of SIMs available. The Report Sheet also assisted in identifying those SIMs which demonstrated the characteristics of self-

instructional materials. In addition, the Report Sheet indicated those materials mislabeled as SIMs. It must be noted, however, that the data collected by these instruments were statements of opinions or perceptions. No data were collected on observed use of SIMs by lecturers.

As for the Stages of Concern questionnaire, data were not conclusive in differentiating the extent to which sources at the refocusing stage had made either major changes in the use of SIMs or had terminated their use by refocusing on alternatives. Such information had to be extracted from the Levels of Use Interview for incorporation in the final analysis of the use and concerns by users and non-users (Table 6). Examination of both the LoU and SoC results taken in conjunction, however, supports the research by CBAM educators that adopter concerns are related to levels of use. The less concerned adopters are about self-centered issues such as seeking information or understanding how adoption personally affects them, the greater the chance for institutionalizing the innovation. As suggested in the CBAM and other innovation research, this study found that the rejection of an innovation often--and simply--occurs when adopters just aren't interested in it (Hall and George, 1979; Havelock, 1971; Miles, 1964, pp. 306-309; Rogers, 1971).

Factors. The analysis of factors influencing the institutionalization level of SIMs reveals that factors may be divided into four distinct categories: those including 1) innovation characteristics, 2) adopter characteristics, 3) innovation process strategies, and 4) social system

constraints or resources. Evidence supporting the salience of these four factor types is not unique to this study, for research conducted by numerous educators has cited the influence of either one or all of these four (Berman and McLaughlin, 1974-1978; Hall, 1979; Havelock, 1971; Katz et al., 1963; Lindquist, 1979; Miles, 1964; Papagiannis et al., 1982; and Rogers, 1961).

Particular to this study, however, was the identification of thirty-eight sub-categories of factors ranging from the writing style of SIMs to the decision-making strategies within the initial years of the SIMs' development. Data on the frequency with which each sub-factor was mentioned by both interviewees and documentary sources indicate that 1) factors within the innovation characteristic category were most frequently cited as supporting the use of the innovation, 2) factors within the innovation process and social system categories were most frequently cited as inhibiting use, and 3) factors related to adopter characteristics were equally cited as supportive and inhibiting.

The finding that innovation process and social system factors were most frequently cited as inhibiting use is corroborated by the works of Havelock (1971), Lindquist (1979), and Wolf (1981). These researchers suggest that innovation studies deemphasize the influence of innovation characteristics per se and focus, instead, on the relations between strategies of innovation diffusion, social system constraints and rate of adoption.

Contrary to the findings of this study in which the influence of adopter characteristics is equally supportive and inhibiting of use,

are those of Rogers and Shoemaker (1971). They suggest that adopter ". . . innovativeness is the best single indicator of modernization . . ." and that if an adopter is not predisposed to being innovative, change will not occur (1971, pp. 175-176). A possible explanation for these contradictory findings may be that Rogers and Shoemaker studied innovativeness as a predetermined characteristic of adopters in relationship to use while this study did not assume any predispositions. Instead, it examined perceptions identified by adopters and related sources themselves. In addition, a further examination of subcategories reveals that sources did philosophically believe in the purposes of SIMs suggesting that they might have used SIMs if other factors had not been present. The findings of Rogers and Shoemaker are certainly called into question by this study's results as is any research based on predetermined, hypothetical or deductive paradigms as opposed to open-ended, exploratory or inductive paradigms (Patton, 1980, p. 19).

Another finding within the analyses of factors is that those inhibiting the use of SIMs were of an interrelated, cause and effect nature. Data within the innovation process category indicated that initial decisions as to the selection of SIMs, their development and subsequent training plans significantly affected the perceptions and reactions of adopters. The Lesotho lecturers who were to have continued on in the use and development of SIMs after the change agents had left the college never felt they were a part of the evolution of SIMs, and, therefore, could not or did not wish to invest in SIMs.

Data within the social system category revealed that, because of

internal problems at the college identified as a lack of staff, heavy workload, time pressures, and low morale, the use and development of SIMs were affected. Lesotho staff assigned to coordinate SIMs did not; monies were not allotted to SIMs and, when all donor contributions ceased, the Lesotho government could not pick up the cost. In consequence, lecturers began to evidence apathy toward the necessary task of upgrading SIMs.

Research studies have neglected to examine directly a cause and effect relationship between particular factors and the survival of innovations. Nothing in the literature reviewed in this study concludes or infers that the innovation process or social system characteristics have as great an influence as this study suggests or a greater influence than innovation or adopter characteristics. Several studies do, nonetheless, refer to the necessity for examining such topics (Berman and McLaughlin, 1974-1978; Havelock, 1971; Lindquist, 1979; Wolf, 1981).

Factors research. In assessing the effectiveness of the research design, one point is of central importance. Most of the data were based on the perceptions of sources. These perceptions differed according to both the role of the source in relationship to SIMs and the basic experience encountered by that source with SIMs.

Interviews with lecturers, administrators and IMRC staff who were directly involved with the current use of SIMs produced data that were very different from data collected from documents, original developers, change agents, or non-lecturers not directly involved with SIMs. Most

of the sources directly involved had little or no vested interest in the institutionalization of SIMs and, thus, their data portrayed an objective view of factors including criticisms of their own attitudes or actions in relationship to SIMs. Data from the original developers and change agents cited factors which might be considered as subjective or defensive in that they focused on a critical analysis of the adopter population rather than on the innovative process over which they had control. Most of the documents written during the initial years of SIMs by donor agency advisers on-site cited very positive statements about the use of SIMs and only rarely mentioned problems. Outside consultants most frequently criticized SIMs in reports which were generally ignored.

Due to the diverse perceptions represented by various sources, the use of a research design based on triangulation of source selection and data collection was found to be particularly effective. It allowed for rich analyses of data according to sources and assisted in simplifying complex and sometimes contradictory findings.

The qualitative information presented in interviews, as opposed to the quantitative data which could be found in documentary sources, was more beneficial in capturing the present factors influencing SIMs as perceived by those involved with the innovation. Regardless of how much training had been documented, how much money originally had been invested, or how many SIMs currently existed, data collected by interviewing adopters, administrators and others revealed that SIMs were not being used. Data collected from donor agency documents alone would

have suggested otherwise.

In conclusion, using a combination of quantitative and qualitative research to identify the factors influencing the innovation was paramount to the intent and execution of this study. Quantitative strategies assisted in organizing the numerous and diverse pieces of data into manageable and meaningful categories, while qualitative strategies assisted this researcher in being sensitive to their uniqueness and to their interrelatedness.

Implications

While the selection and study of one innovation within a specified teacher training institution of a particular developing country provides only a narrow focus from which to generalize to other settings, several implications for the institutionalization of innovations and for researching innovations can be suggested. Where possible, references to other studies which have supported similar implications are cited.

Institutionalizing innovations.

Adopter as key target. Findings within this study imply that if adopters perceive that the innovation process or the social system in which they work is not supportive in using an innovation, they may not react positively to it. Regardless of the degree to which change agents, donor agencies or local opinion leaders believe their individual competencies are effective in promoting an innovation, adopter per-

ceptions of them and their efforts will be a primary factor in an innovation's survival. As Havelock states:

> Individuals change their attitudes or resist change not only on the basis of their own psychological characteristics, but, also, on how these characteristics relate to the change agent's relationship to them and how the change agent attempts to influence them (1971, p. IV-26).

Change agent as facilitator. Since this study's findings imply that adopter perceptions should be of primary consideration within the institutionalization process, the actions of the change agent must subsequently account for these perceptions. In this study, the original change agent approached innovation from a typical Research and Development perspective in which the innovation's appropriateness took priority over the consideration of adopter needs. It was the change agent's role to sell the innovation based on his commitment to it, not to the adopter's. As found in the studies of Havelock (1971), Havelock and Huberman (1977), and Lindquist (1979), this approach often is counterproductive in the long-term survival of an innovation.

Findings from this research suggest that if the change agent 1) had incorporated adopters in the decision-making processes surrounding the selection, development and training of SIMs, 2) had not separated the roles of international expatriate staff and the local, national staff in regard to SIMs, and 3) had listened to or acknowledged adopter concerns about SIMs, they may, indeed, have had a better survival rate. An approach to innovation based on models such as the Problem-Solving (Miles, 1974), Social Interaction (Miles, 1974), Social Interaction (Katz, 1973; Rogers and Shoemaker, 1971), or Linkage (Have-

lock, 1971) in which the change agent collaborates closely with the adopter population might have assisted the agent in avoiding the resentment and apathy evidenced today.

Participatory control. Based on this study's finding that little responsibility and training were given to those adopters expected to carry on the innovation process after the international staff or change agents had departed, it may be suggested that the participation of local adopters as early as possible within the innovation process is essential. This may be done in the form of representation on a coordinating body determining the need for and selection of innovations. At least, as this study implies, adopters should be informed right from the start as to the purpose of the innovation and the basics of its usage. As Lindquist concluded in his study of change strageties, "A logical relationship, and one substantiated by diffusion research, is between understanding, interest, and use--the more the understanding, the more the interest and use" (1979, p. 234).

The involvement of adopters in understanding the innovation is not the only implication to be drawn from this study. The participation of adopters in controlling the total innovation process is suggested. Data sources commented that the innovation of SIMs was the change agent's and not their own; several other sources indicated that they resented not being responsible for the kinds of innovations introduced to the College. Numerous studies on change and innovation support this suggestion of local control (Havelock, 1971; Lindquist, 1979; Papagiannis, 1982).

Data also imply that such participation must continue throughout the life-history of the innovation. As typical in any donor funded project, transitions occur: key individuals leave the project, others differing in temperament and intent enter, funding is continuously assessed and often decreases. Some continuity must be found in the form of a consistent, governing body or appointed individual. The findings of this study suggest that this group or individual should not be fully international in composition, but rather national.

Social system support. This study, like many others (Berman and McLaughlin, 1974-1978; Havelock and Huberman, 1977), presents findings which propose that the environment in which an innovation exists profoundly affects its fate. One implication is that institutionalization may not occur regardless of 1) how purposeful an innovation is perceived to be, 2) the philosophical propensity on the part of adopters to use an innovation, or 3) the pre-knowledge adopters may have from their primary, secondary or teacher training experiences. Innovations still may not be institutionalized if pressures within the social system environment place constraints on adopters over which they may have no control. As found in the CBAM research, such constraints may even be out of the control of the change agent (Hall, 1979, p. 19).

The constraints cited in this study are similar to those cited in numerous reports on other innovations in developing countries. These constraints vary from bureaucratic "red tape" (Penang, 1979, p. 32), to administrative apathy (Havelock and Huberman, 1977, p. 16), to financial or material paucity (NEIDA, 1978, p. 55).

An additional implication arising from this study is that cost-sharing by local and donor agencies should be considered. The financial support of SIMs depended totally on UNESCO funding and was not taken over by local authorities. The continuous flow of monies into innovative projects without local contribution or control has been found to be counter-productive in assisting local organizations or institutions in "owning" their own innovations. Reports from major international funding agencies support this (World Bank, 1980) as do reports from the increasing number of locally run innovation networks within developing countries (NEIDA, 1979).

Donor agency connections. Data from documents which describe the history of the innovation examined suggest that the donor agency had little objective information on the development of SIMs. Written primarily by advisors or consultants hired by the donor agency and which described these individuals' subjective impressions about SIMs, such documents tended to represent the positive side of the innovation and only rarely the problems which were arising. Even when consultants did not present these problems, the impact appears to have been minimal. One implication which can be drawn from these observations is that donor agencies may need to assess their methods of project documentation and evaluation for validity and objectivity. Assessments written by their own employees, and evaluations conducted in isolation from those sources receiving services (such as national teachers and students) may prove to be invalid and far from helpful.

Researching innovations.

Wholistic approach. The findings of this study imply that factors influencing the institutionalization of innovations may be assessed more effectively if a wholistic or systemic approach to innovation research is considered. Synthesizing those aspects of innovation which have been found within previous research on innovations to be influential, the Wholistic Innovation Model used in this study guided research on the selection of sources, instruments and analysis strategies. Such a comprehensive design had been proposed in various other studies (Hall, Wallace and Dorset, 1973; Havelock, 1971; Lindquist, 1979; Rogers and Shoemaker, 1971).

Qualitative approach. Certainly, one of the most conclusive findings of this study suggests that innovations should be examined through the perspective of those who are most intimately involved with them. A qualitative approach to the study of innovations rejects the assumptions within the assessment of subjectively predetermined factors. Instead, it encourages the identification of factors induced directly from the testimony of sources, not from the interpretation attached by the researcher.

Evaluations of innovations within developing countries frequently have been conducted by Western consultants how have based their findings on quantitative analyses of project objectives with little time or intention to assess the perceptions of innovation recipients (Havelock and Huberman, 1977). In contrast, findings from this study imply that qualitative research may be one of the most valid and ethical

ways of evaluating innovations.

Primary and secondary factors. Results of this research also suggest that, in studying innovations, recognition of interrelatedness among factors, similar to the domino effect, may be useful. Actions taken early in the innovation process, such as the designation of who is responsible for developing the innovation, may have an impact on reactions by adopters later on. Also, this interrelatedness implies that the context of the innovation's history must be considered and not just its present situation. Too often, recommendations for the improvement of an innovation process are based on secondary factor influences rather than on primary influences which can be discovered only when extensive historical evaluation is conducted.

Recommendations

Based on the findings and implications previously proposed, this final section presents several recommendations to teacher educators, change agents, educational planners and innovation researchers. These recommendations are divided into two lists, one for practitioners involved in the institutionalization of innovations, and a second list for those researchers involved in conducting innovation research.

Practitioners. The following list proposes several recommendations for change agents involved in the institutionalization of innovations in developing countries. The list may be read as a chronological directive beginning with suggestions that may assist in the initiation per-

iod of the innovation process and concluding with those applicable to the final, institutionalization stage. The reader is encouraged to refer to the references cited in previous sections of this chapter which support each recommendation.

1. A participatory model of responsibility for the innovation is essential at the beginning of the innovation process. Adopters, particularly, should be incorporated in decisions about the initial selection, development and introduction of the innovation. The support of opinion leaders, administrators of Ministry officials may not be enough.

2. A coordinating body of representatives from all groups responsible for and affected by the innovation should be organized as soon as the innovation is selected to oversee its progression throughout the initiation, implementation and institutionalization periods. Continuity of some trained and interested personnel appears to be imperative.

3. The training of all personnel involved in the innovation should be based on a valid needs assessment and account for varying degrees of concerns, pre-knowledge and motivation. On-site, short-term, and locally directed training may be more productive than off-site, long-term and consultant-directed training.

4. A continuous evaluation of the perceptions, not just actions, of personnel involved with the innovation must be conducted. Such evaluations should be completed by an objective third party not dependent upon the success of the innovation nor donor agency funding.

5. The progressive adaptation of the innovation over time by its adopters to their particular needs and environment should be anticipated and considered within the strategies chosen for institutionalization.

6. Social system support in the form of money, training, materials, and personnel must not depend solely on donor agency contributions. Cost-sharing through such strategies as in-kind services may prove most beneficial in assisting the continuation of the innovation after initial funding ceases.

Researchers.

1. The definition of "use" employed within an innovation process must be selected with great care. Recognizing the influence of adaptation on the quality and quantity of use for an innovation, evaluators must assure themselves that they employ an accurate indication of use. More research on the concept of use and potential generic indicators is needed.

2. Innovation research should examine innovations through as many interrelated facets of their existence as possible. Focusing solely on innovation characteristics or adopter characteristics may produce near-sighted results. In contrast, focusing only on the innovation process itself or social system constraints may be too far-sighted. A wholistic approach, as proposed in this study, provides an opportunity to combine both perspectives in an optimally productive effort.

3. The types of innovation evaluations conducted by donor agencies on projects in developing countries should be assessed as to their appropriateness to the cultures of developing countries and as to their thoroughness and objectivity. The qualitative reserach approach which focuses on the perceptions of innovation recipients may be more appropriate than the exclusive use of a quantitative approach which depends on predetermined, subjective categories of information.

Concluding Remarks

This study has examined issues surrounding the institutionalization of innovations, particularly in the educational settings of developing countries. Literature on the types of innovations being introduced as well as representative theories and models of innovation research have been reviewed. A case study was designed to evaluate the current status of an innovation within a teacher training institution of a developing country and the factors influencing that status.

Conclusions, implications and recommendations were drawn for those

involved in institutionalizing innovations or in innovation research. The issues of participatory decision-making, collaborative control and continuous sensitivity to the needs and perceptions of all involved in the innovation process were recommended as the critical strategies for institutionalizing innovations.

It is the hope of this investigator that this study will in some way be found useful to those interested in innovations. More importantly, though, she hopes that change agents within all cultures will recognize and be moved by her plea that we all be more humble in recognizing that an innovation project does not belong to us, more sensitive to the capabilities and needs of those with whom we are working, more flexible in acknowledging that change is slow and must fit the environment into which it enters, and, finally, more patient in realizing--as did the poet John Donne--that we are only a small "part of the continent, a piece of the main."

BIBLIOGRAPHY

Anzalone, S. To build a college. Maseru, Lesotho: NTTC, 1976.

Asian Programme of Education Innovation for Development. Preparing teachers for education in rural development - a handbook: Innovations in teacher education. Bangkok: UNESCO Regional Office for Education in Asia and Oceania, 1977.

Asian Programme of Education Innovation for Development. Universalizing education: New techniques for preparing educational personnel. Bangkok: UNESCO Regional Office for Education in Asia and Oceania, 1978.

Berman, P. & McLaughlin, M. W. Federal programs supporting educational change, Volumes I-VIII. California: Rand Corporation, September 1974 to May 1978.

Bolibaugh, J. B. Educational development in Guinea, Mali, Senegal, and Ivory Coast. Washington, D.C. : Institute of International Studies, 1972.

Carnoy, M. Education and employment: A critical appraisal. Paris: UNESCO- International Institute for Educational Planning, 1977.

Center for Educational Research and Innovation. Innovation in in-service education and training of teachers: Practice and theory. Paris: Organisation for Economic Co-operation and Development,1978.

Commonwealth Secretariat. Education in developing countries of the Commonwealth: Reports of research in education. London: Commonwealth Secretariat, 1973.

Coombs, P. H. The world crisis. A systems analysis. New York: Oxford University Press, 1968.

Coombs, P. H. & Ahmed, M. Attacking rural poverty: How non-formal education can help. Baltimore: The John Hopkins University Press, 1974.

Coombs, P. H. & Hallak J. Educational cost analysis in action: Case studies for planners. Paris: Institute for Educational Planning - UNESCO, 1972.

Davis, R. Planning education for development: Volume I - Issues and problems in the planning of education in developing countries. Cambridge, Massachusetts: Harvard University, Center for Studies in Education and Development, 1980.

Denzin, N. The research act: A theoretical introduction to sociological methods. Chicago: Aldine Publishing Company, 1970.

Dodd, W. A. Teacher education in developing countries of the Commonwealth:A survey of recent trends. London: Commonwealth Secretariat.

Dyasi, H. The teaching-learning strategy of the primary science project of the science educ ation programme for Africa. Paris: International Institute for Educational Planning, 1977.

Educational Study Group. Innovation in education - a theoretical background paper. Hague, Netherlans: Institute of Social Studies, 1971.

Freire, P. Pegagogy of the oppressed. New York: Seabury Press, 1970.

Freire, P. Education: The practice of freedom. London: Writers and Readers Publishing Cooperative, 1976.

Freire, P. Pedagogy in process: The letters to Guinea-Bissau. New York: The Seabury Press, 1978.

Fuller, F. Concerns of teachers: A developmental conceptualization. American Educational Research Journal, March 1969, 6(2), 207-226.

Fuller, F. & Parsons, J. & Watkins, J. Concerns of teachers: Research and reconceptualization. Austin, Texas: Research and Development Center for Teacher Education, April 1974.

George, B. S. Education in Ghana. Washington, D.C. : Office of Education, 1976.

Haddad, W. Education sector policy paper. Washington, D.C. : World Bank, 1980.

Hall, G. Levels of use and extent of implementation of new programs in teacher education institutions: What do you do? Paper presented at the annual meeting of the American Association of Colleges of Teacher Education, Chicago, February 25 - 28, 1979. (a)

Hall, G. Using the individual and the innovation as the frame of reference for research on change. Austin, Texas: Research and Development Center for Teacher Education, The University of Texas, 1979. (b)

Hall, G. & George, A. A. Stages of concern about the innovation: The concept, initial verification and some implications. Austin, Texas: Research and Development Center for Teacher Education, The University of Texas, 1979.

Hall, G. & George, A.A. & Rutherford, W. L. Measuring stages of concern about the innovation: A manual for use of the SoC Questionnaire. Austin, Texas: Research and Development Center for Teacher Education, The University of Texas, 1979.

Hall, G. & Loucks, S. Innovation configuration: Analyzing the adaptation of innovations. Austin, Texas: Research and Development Center for Teacher Education, The University of Texas, 1978.

Hall, G. & Loucks, S. & Rutherford, W. & Newlove, B. Levels of use of the innovation: A framework for analyzing innovation adoption. Journal of Teacher Education, 1975, 26(1), 52-55.

Hall, G. & Rutherford, W. Client concerns: A guide to facilitating institutional change. Austin, Texas: Research and Development Center for Teacher Education, 1979.

Hall, G. & Wallace, R. & Dossett, W. A developmental conceptualization of the adopter process within educational institutions. Austin, Texas: Research and Development Center for Teacher Education, The University of Texas, 1973.

Hanson, J. W. Enhancing the contribution of formal education in Africa: Primary schools, secondary schools and teacher training institutions. Washington, D.C. : American Council on Education, April 1971.

Havelock, R. G. Planning for innovation through dissemination and utilization of knowledge. Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, 1971.

Havelock, R. G. The change agent's guide to innovation in education. Englewood Cliffs, New Jersey: Educational Technology Publications, 1973.

Havelock, R. G. & Huberman, A. M. Solving educational problems: The theory and reality of innovation in developing countries. Paris: UNESCO, 1977.

International priorities for teacher education. Washington, D.C.: International Council on Education for Teaching, 1969.

Katz, G. & Hamilton, H. & Levin, M. Traditions of research on the diffusion of innovation. American Sociological Review, 1963, 28(1), 237 - 252.

Klassen, F. (Ed.) . Priorities for the preparation of secondary school teachers in Middle Africa. Washington, D.C.: The National Council on Education for Teaching, 1970.

Klassen, F. H. & Collier, J. L. (Eds.). Innovation now! International perspectives on innovation in teacher education. Washington, D.C.: International Council on Education for Teaching, 1977.

Kozol, J. Children of the revolution. New York: Delacorte Press, 1978.

LaBelle, T. J. Educational alternatives in Latin America: Social change and social stratefication. Los Angeles: Latin American Center Publications, U.C.L.A., 1975.

Leavitt, H. B. & Klassen, F. H. The quest for excellence in teacher education. Washington, D.C. : International Council on Education for Teaching, 1978.

Leavitt, H. B. & Klassen, F. H. Teacher education and rational development: International perspectives on the role of teacher education in nation building. Washington, D.C.: International Council on Education for Teaching, 1979.

The Lesotho National Teacher Training College (Brochure). Maseru, Lesotho: NTTC, 1981.

Lindquist, J. Strategies for change. Berkeley, California: Pacific Surroundings Press, 1978.

Lindquist, J. (Ed.). Increasing the impact of social innovations funded by grantmaking organizations. Battlecreek, Michigan: The W. K. Kellogg Foundation, 1979.

Loucks, S. Conceptualizing and measuring program implementation: A variable useful for planned change and evaluation. Paper presented at the annual meeting of the American Educational Research Association, Toronto, March 27, 1978.

Loucks, S. & Newlove, B. & Hall, G. Measuring levels of use of the innovation: A manual for trainers, interviewers and raters. Austin, Texas: Research and Development Center for Teacher Education, The University of Texas, 1975.

Miles, M. Innovation in education. New York: Teachers College, Columbia University, 1964.

Miltz, R. J. & Marks, V. Teaching skills for use in international settings. Lesotho: Instructional Materials Resource Center, 1979.

Ministry of Education - Ghana. Development of education in Ghana. Report presented at the 36th International Conference on Education in Geneva, Switzerland, August 30 - September 8, 1977.

Ministry of Education - Sudan. Development of education, 1974 - 1976. Report presented at the 36th International Conference on Education in Geneva, Switzerland, August 30 - September 8, 1977.

Network of Educational Innovation for Development in Africa. Regional workshop on educational innovations for rural development and teacher training. Dakar, Senegal: Regional Office For Education in Africa, 1979.

Network of Educational Innovation for Development in Africa. NEIDA Digest, June 1981, 3.

Normington, L. W. Teacher education and the Agency for International Development. Washington, D.C.: The American Association of Colleges for Teacher Education, 1970.

Nyerere, J. K. Education for self-reliance. Dar Es Salaam, Kenya: Government Printer, 1967.

Ohuche, O. S.E.P.A. science and learning theory: A monograph for teachers and teacher educators. Science Teacher Education Monograph, Series - No.I. Washington, D.C.: Department of State, 1974.

The Report of the International Conference on teaching - learning process in universities. Penang, Malaysia: Universiti Sains Malaysia, 1979.

Papagiannis, George J. & Klees, S. J. & Bickel, R. N. Toward a political economy of educational innovation. Review of Educational Research. Vol. 52, No. 2. 1982. pp.245 - 290.

Patton, M. Q. Qualitative evaluation methods. London: Sage Publications, 1980.

Philips, H. M. Planning educational assistance for the second development decade. Paris: UNESCO - International Institute for Educational Planning, 1973.

Razik, T. A. Innovation in teacher education: The challange to prepare teachers as agents of change. Cairo, Egypt: UNESCO Regional Office for education in Arab countries, 1980.

Reed, H. B. & Reed, M. J. Nepal in transition. Pittsburgh: University of Pittsburgh Press, 1968.

Roberts, Glyn. Volunteers and neo-colonialism: An inquiry into the role of foreign volunteers in the Third World.(unpublished document)

Rogers, E. M. Diffusion in innovations. New York: The Free Press of Glencoe, 1962.

Rogers, E. M. & Shoemaker, F. Communication of innovations: A cross-cultural approach. New York: The Free Press, 1971.

Sideman, E. On in-depth phenomenological interviewing. (unpublished document, University of Massachusetts, 1982.)

Shuman, D. Policy analysis, education and everyday life. Lexington, Massachusetts: D. C. Heath, 1982.

UNESCO. Seminar on the training of teachers by the interdisciplinary method to use this system in schools: Final report. Bouake, Ivory Coast: UNESCO, 1970. (ERIC Document Reproduction Service No. ED 049 174)

UNESCO. Environmental science education for pre-service primary teacher education: Report of a workshop on environmental science education. Nairobi, Kenya: UNESCO, 1974.

UNESCO. College of Education, Abraka: Project findings and recommendations. Paris: UNESCO. 1978. (a)

UNESCO. Education in Asia and Oceania: Regional conference of Ministers of Education and those responsible for economic planning in Asia and Oceania. Colombo, Sri Lanka: UNESCO, 1978. (b) (ERIC Document Reproduction Service No. ED 182 209)

UNESCO. Education reforms and innovations in Africa: Experiments and innovations in education - No. 34. Paris: UNESCO, 1978.(c)

UNESCO. Evaluation of technical co-operation projects in education: Guide for the non-specialist practitioner. Paris: UNESCO, 1979. (a)

UNESCO. The training of educational personnel. Bangkok, Thailand: UNESCO Regional Office for Education in Asia and Oceania, 1979. (b)

UNESCO. Statistical yearbook. Paris: UNESCO, 1980.

UNESCO. 1982 Statistical yearbook. Paris: UNESCO, 1982.

Weiler, H. N. Education and development: From the age of innocence to the age of scepticism. Comparative Education, 1978, 14(3), 179 - 198.

Wolf, W. C. Wolf- Welsh linkage methodology. (unpublished article, University of Massachusetts, 1979.)

Wolf, W. C. Linkage knowledge production and needs of knowledge users. (unpublished article, University of Massachusetts, 1981.)

APPENDIX A

SAMPLE SIM

SELF –
INSTRUCTIONAL
MATERIAL

READING 1 : what is it ?

SELF-INSTRUCTIONAL MATERIAL

Title: READING 1: What is it?

Aim: To give teachers and prospective teachers some idea of what is involved when a pupil is faced with his first page of print.

Instructions: 1. Read the Introduction below.
2. Read Activity 1 and do the questions on it before starting activity 2.
3. Write all the answers on the seperate sheet provided. DO NOT WRITE IN THIS BOOKLET.

Materials: a pen or pencil and the answer sheet.

Time: 1 or 11/2 hours.

Developed by: Michael A. Kiernan January 1978

::::::::::::::::::::::::::::::::::::::

Introduction: This SIM is designed to make you think about a pupil who is starting to learn how to read.

When you are finished you must ask yourself if you have learned anything about the pupil's problems.

Before a doctor can cure you he must know what your problem is, what you are suffering from.

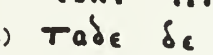
A teacher is like a doctor - you must know your pupil's problems before you can begin to teach him.

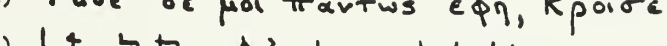
ACTIVITY 1

Look at the following:

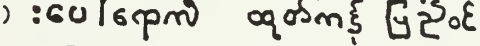
(1) Today is Tuesday.

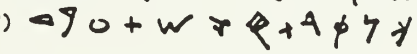
(2) 

(3) 

(4) 

(5) 

(6) 

(7) 

Queations:

1. How many of the above make aenae to you?
2. How many of the above are written in a similar alphabet?
3. How many of the above can you pronounce?
4. Which of (2) - (7) is neareat to the alphabet of (1)?

COMMENT

ALL THE ABOVE (1) - (7) MAKE SENSE

However, we only know (1) - Today is Tuesday - because it is written in the alphabet that we know, or that we have been taught.

We can READ (1) above, because we can recognise the alphabetic system that ia used. Thia ia the 26 letter system : ABCDEF.....XYZ.

SELF-INSTRUCTIONAL MATERIAL

READING 1

ANSWER SHEET

ACTIVITY 1

1. Only one (i)
2. none - all are different
3. only one (i)
4. No. (4) because some of the letters are the same (o, i, ω ,)

ACTIVITY 2

1. Yes
2. All except no. (iv)
3. Only one , no.(i)
4. The words are in the wrong order.

ACTIVITY 3

1. a b d g a h q r t

2. The Same: B C D E H I K N O S X
   Different: M P U Z
   Nothing: A F G J L Q R T V Y

Activity 4

Sam	Daddy
Look, Daddy Look, Look.	Look, Daddy. Look at me.
Look, Daddy Look at the duck	See me Daddy See me shoot See me shoot at the duck

EVALUATION

1. (c) 2. (c) 3. (b) 4. (c) 5. (c)

APPENDIX B

SAMPLE SIMS REPORT SHEET

SIMs. SELF-INSTRUCTIONAL MATERIALS 1982 TITLE	DEVELOPER	DATE PREPARED	DATE REVISED	DATE TESTED	TOPIC	AIM	OBJECTIVES	DIRECTIONS	TABLE OF CONTENT	REFERENCES	TIME REQUIRED	PRACTICAL ACTIVITIES	THEORETICAL TEXT	SELF-CHECKS	ANSWER KEYS	SUMMATIVE EVAL.	COPIES IN LIB.
16.Listening	Expatriate	1976			✓	✓	✓		✓	✓	✓	✓	✓				12
17. Media App. to Educa.	Expatriate	1976	1976				✓	✓	✓		✓	✓	✓			✓	7
18.Gen.Th. of Adm.	Basotho	1977			✓	✓	✓		✓	✓	✓		✓			✓	4
19.Pl.and Gr. of Child. for Read.	Expatriate	1976				✓	✓	✓	✓	✓	✓			✓	✓		9
20. Read.3	Expatriate	1978			✓		✓	✓			✓	✓	✓				40
21.Research?	Expatriate	1979				✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	14
22.Rel.bet. teach./pup.	Basotho	1977											✓				8
23.Read-What is it?	Expatriate	1978			✓	✓		✓		✓	✓	✓		✓	✓	✓	50
24.Sch. Adm.	Basotho	1978			✓	✓	✓			✓			✓				5
25.Sch.Disci.	Basotho	1980							✓	✓			✓				14
26.Scrounging	Expatriate	1977	1977		✓	✓	✓			✓	✓	✓				✓	23
27.Using Sociogram	Expatriate		1976			✓		✓	✓		✓	✓		✓			8
28.What is curriculum?	Basotho	1979					✓	✓				✓	✓			✓	0
29.WritingObj.	Expatriate	1977				✓		✓	✓		✓						10
30. The Bean	Team	1976			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	25
31.Comm.Fert.	Expatriate	1981				✓	✓	✓		✓	✓		✓	✓	✓	✓	16
32. Compost Making	Expatriate	1980				✓	✓	✓	✓	✓	✓		✓	✓		✓	15

APPENDIX C

DOCUMENTS REVIEWED

D1 - Faculty Meeting Minutes (1975 - 1982)

D2 - Curriculum Committee Minutes (1976 - 1982)

D3 - Revised Plan For The National Teacher Training College, Maseru, Lesotho. (Project Document - UNESCO/DANIDA). November 10, 1972.

D4 - Plan of Operation. (Project Document - UNESCO). August 23, 1973.

D5 - United Nations Development Programme Project of the Government of the Kingdom of Lesotho. January, 1974.

D6 - United Nations Development Programme Project Revision Form: Annex IV. (Central Planning Office, Maseru, Lesotho). July, 1974.

D7 - Reports for UNESCO by Carl Hoagland, UNESCO Specialist in Teacher Education. 1975.

1. The Establishment of a NTTC Specialist in Teacher Education: April 15 - October 15, 1975.
2. Report on Self-Instructional Materials: August 10, 1975.
3. The Establishment of a National Teacher Training College: September 3, 1975.

D8 - The Lesotho National Teacher Training College: Background Information, 1975. (College Brochure)

D9 - United Nations Development Programme Project Revision Form: January 24, 1976.

D10 - Draft: The Development of NTTC Self-Instructional Materials-Prospectus For 1976.

D11 - NTTC Prospectus: 1976.

D12 - Reports for UNESCO by Carl Hoagland, UNESCO Specialist in Teacher Education. 1976.

1. Semi-Annual UNESCO Report: May 1976.
2. Progress Report: May - October 1976.
3. Semi-Annual Report: October 15, 1976 - April 15, 1977.

D13 - Papers Prepared for UNESCO Technical Mission - Lesotho Teacher Training College, November 1976.

D14 - Memos to CTA
1. Handwritten notes un-named
2. Memo to CTA from Carl Hoagland

D15 - Report To Faculty: Self-Instructional Materials by Carl Hoagland, 1977.

D16 - Self- Intructional Programme Policy at the NTTC by Carl Hoagland, November 29, 1976.

D17 - Summary of SIMs Questionnaire by Carl Hoagland, January 10-21, 1977.

D18 - Report on Consultancy on Self- Instructional Materials: 20 February 1977 - March 11, 1977 by John C. Mathews.

D19 - Writing Self- Instructional Materials: Some Notes for Guidance: March 8, 1977 by John C. Mathews.

D20 - Letter from S. Rauch (Africa Section, Operational Programmes Division, Education Sector, UNESCO? Paris). May 9, 1977.

D21 - Final Report: Carl Hoagland, July 22, 1977.

D22 - Memo: To Chief Technical Adviser - NTTC
From: Robert Dodd (UNESCO Adviser)
10 January, 1978.

D23 - Final Report: An International Seminar " Evaluation In The Education of Teachers". NTTC, 27th March - 1 April, 1978.

D24 - Manual Of Guidance on Self-Instructional Materials in Developing Countries by Z. F. Matsela, Spring 1978.

D25 - UNESCO Report on Mission to Lesotho National Teachers Training College, by J. A. Hendry. 3 - 26 April, 1978.

D26 - United Nations Development Programme Project Revision Form - May 19, 1978.

D27 - Exercise on the Planning and Monitoring of Educational Innovation and Reform Projects: Tripartite Application of a Possible Framework to LES/72/062. Maseru, 31 May - 7 June, 1978.

D28 - 1978 Staff Handbook: National Teacher Training College

D29 - Memo To: Acting Director, NTTC
From: J. McIntosh
Subject: Curriculum Review, October 16, 1978.

D30 - Internal Circulaire of 1978 at NTTC to Faculty Members and Senior Staff from Director. November 14, 1978.

D31 - Memo: To NTTC Faculty from IMRC Staff
Subject: SIMs Guidelines
March 30, 1979.

D32 - Memo:
From: Patsy Lane
Subject: Report on IMRC Workshop - June 26, 1979.

D33 - Final and Handing Over Report of the Outgoing Director of NTTC - August, 1979.

D34 - Lesotho National Teacher Training College. (Handout), 1979.

D35 - Memo: To Curriculum Committee
From: J. McIntosh, CTA
Subject: Electives, March 3, 1980.

D36 - Memo: To I. H. Leloka, Acting Director
From: J. McIntosh, CTA
Sub: Curriculum Committee Work Plan 1980.

D37 - Memo: From I. H. Leloka, June 4, 1980.

D38 - Evaluation Mission Papers - August, 1980. NTTC/UNESCO/ UNDP Project LES/72/062.

D39 - Report of Evaluation Mission. UNESCO, August 1980.

D40 - UNDP - Project Revision. October 1980.

D41 - Teaching Methods Used at NTTC.

D42 - Draft: Report on the Consultancy in Organization and Management at the National Teacher Training College. October, 1981 - December 4, 1981.

D43 - UN Volunteer Appointment. (Job Description)

D44 - Questionnaire Results of Poll Taken by CTA: NTTC Programme Evaluation. July 1976.

APPENDIX D

IDENTIFIED AND UTILIZED SUBJECTS AND SOURCES

IDENTIFIED AND UTILIZED SUBJECTS AND SOURCES

SOURCES	NUMBER IDENTIFIED	NUMBER UTILIZED
NTTC LECTURERS	61	57
NTTC ADMINISTRATORS	6	5
BOARD OF GOVERNORS MEMBERS	9	9
IMRC EDITORIAL STAFF	5	4
MINISTRY OF EDUCATION REPRESENTATIVE	1	1
ORIGINAL CHANGE AGENTS	2	2
ORIGINAL ADOPTERS/ DEVELOPERS	11	11
DOCUMENTS	60 sets	44 sets

APPENDIX E

DATA COLLECTION INSTRUMENTS

APPENDIX E-1

SOC QUESTIONNAIRE

SoC QUESTIONNAIRE ITEMS*

0 Irrelevant | 1 Not true of me now | 3 Somewhat true of me now | 4 | 5 | 6 Very true of me now | 7

1.	I am concerned about students' attitudes toward this innovation.	0	1	2	3	4	5	6	7
2.	I now know of some other approaches that might work better.	0	1	2	3	4	5	6	7
3.	I don't even know what the innovation is.	0	1	2	3	4	5	6	7
4.	I am concerned about not having enough time to organize myself each day.	0	1	2	3	4	5	6	7
5.	I would like to help other faculty in their use of the innovation.	0	1	2	3	4	5	6	7
6.	I have a very limited knowledge about the innovation.	0	1	2	3	4	5	6	7
7.	I would like to know the effect of reorganization on my professional status.	0	1	2	3	4	5	6	7
8.	I am concerned about conflict between my interests and my responsibilities.	0	1	2	3	4	5	6	7
9.	I am concerned about revising my use of the innovation.	0	1	2	3	4	5	6	7
10.	I would like to develop working relationships with both our faculty and outside faculty using this innovation.	0	1	2	3	4	5	6	7
11.	I am concerned about how the innovation affects students.	0	1	2	3	4	5	6	7
12.	I am not concerned about this innovation.	0	1	2	3	4	5	6	7
13.	I would like to know who will make the decisions in the new system.	0	1	2	3	4	5	6	7
14.	I would like to discuss the possibility of using the innovation.	0	1	2	3	4	5	6	7
15.	I would like to know what resources are available if we decide to adopt this innovation.	0	1	2	3	4	5	6	7
16.	I am concerned about my inability to manage all the innovation requires.	0	1	2	3	4	5	6	7
17.	I would like to know how my teaching or administration is supposed to change.	0	1	2	3	4	5	6	7
18.	I would like to familiarize other departments or persons with the progress of this new approach.	0	1	2	3	4	5	6	7

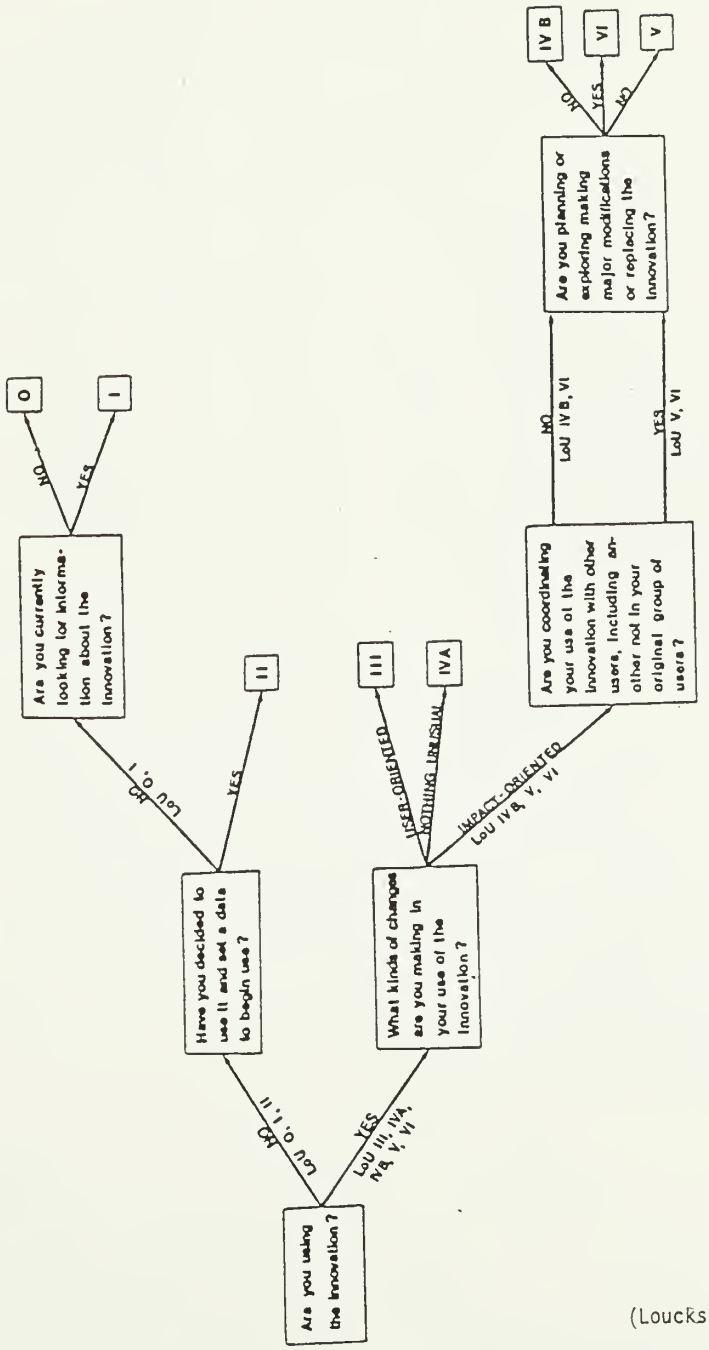
	0 Irrelevant	1 Not true of me now	2	3 Somewhat true of me now	4	5	6 Very true of me now	7

19.	I am concerned about evaluating my impact on students.	0	1	2	3	4	5	6	7
20.	I would like to revise the innovation's instructional approach.	0	1	2	3	4	5	6	7
21.	I am completely occupied with other things.	0	1	2	3	4	5	6	7
22.	I would like to modify our use of the innovation based on the experiences of our students.	0	1	2	3	4	5	6	7
23.	Although I don't know about this innovation, I am concerned about things in the area.	0	1	2	3	4	5	6	7
24.	I would like to excite my students about their part in this approach.	0	1	2	3	4	5	6	7
25.	I am concerned about time spent working with nonacademic problems related to this innovation.	0	1	2	3	4	5	6	7
26.	I would like to know what the use of the innovation will require in the immediate future.	0	1	2	3	4	5	6	7
27.	I would like to coordinate my effort with others to maximize the innovation's effects.	0	1	2	3	4	5	6	7
28.	I would like to have more information on time and energy commitments required by this innovation.	0	1	2	3	4	5	6	7
29.	I would like to know what other faculty are doing in this area.	0	1	2	3	4	5	6	7
30.	At this time, I am not interested in learning about this innovation.	0	1	2	3	4	5	6	7
31.	I would like to determine how to supplement, enhance, or replace the innovation.	0	1	2	3	4	5	6	7
32.	I would like to use feedback from students to change the program.	0	1	2	3	4	5	6	7
33.	I would like to know how my role will change when I am using the innovation.	0	1	2	3	4	5	6	7
34.	Coordination of tasks and people is taking too much of my time.	0	1	2	3	4	5	6	7
35.	I would like to know how this innovation is better than what we have now.	0	1	2	3	4	5	6	7

* Reprinted with permission

APPENDIX E-2

LOU INTERVIEW-BRANCHING FORMAT



(Loucks,Newlove, and Hall,1975,p.22)

APPENDIX E-3

SAMPLE LOU INTERVIEW

Question	Question
Are you using the innovation? (Can you describe SIMs for me?) Added by this researcher. IF YES What do you see as the strengths and weaknesses of the innovation in your situation? Have you made any attempt to do anything about the weaknesses? Are you currently looking for any information about the innovation? What kind? For what purpose? Do you ever talk with others about the innovation? What do you tell them? What do you see as being the effects of the innovation? In what way have you determined this? Are you doing any evaluating, either formally or informally, of your use of the innovation? Have you received any feedback from students? What you have done with the information you get? Have you made any changes recently in how you use the innovation? What? Why? How recently? Are you considering making any changes? As you look ahead to later this year, what plans do you have in relation to your use of the innovation?	Are you working with others (outside of anyone you may have worked with from the beginning) in your use of the innovation? Have you made any changes in your use of the innovation based on this coordination? Are you considering or planning to make major modifications or to replace the innovation at this time? How do you work together? How frequently? What do you see as the strengths and the weaknesses of this collaboration? Are you looking for any particular kind of information in relation to this collaboration? When you talk to others about your collaboration, what do you share with them? Have you done any formal or informal evaluation of how your collaboration is working? What plans do you have for this collaborative effort in the future?

Question	Question
IF NO	IF PAST USER
Have you made a decision to use the innovation in the future? If so, when? Can you describe the innovation for me as you see it? Are you currently looking for any information about the innovation? What kinds? For what purposes? What do you see as the strengths and weaknesses of the innovation for your situation? At this point in time, what kinds of questions are you asking about the innovation? Give examples if possible. Do you ever talk with others and share information about the innovation? What do you share? What are you planning with respect to the innovation? Can you tell me about any preparation or plans you have been making for the use of the innovation? Can you summarize for me where you see yourself right now in relation to the use of the innovation? (Optional Question)	Why did you stop using the innovation? Can you describe for me how you organized your use of the innovation, what problems you found, what its effects appeared to be on students? When you assess the innovation at this point in time, what do you see as the strengths and weaknesses for you? (Loucks, Newlove, Hall, 1975)

APPENDIX E-4

SIMS CONFIGURATION PATTERN CHECKLIST

COMPONENT	DEMONSTRATES USE ACCORDING TO DEFINITION		DEMONSTRATES NON-USE
Role	Separate topics than classroom ones	Supplementary topics to classroom ones	Assignment only/ workbook
Amount of Curriculum	50%	Whenever needed	Optional or never
Student Time	8 hours/ week	Whenever necessary	Optional or never
Evaluation	Part of student record		Not part of student record
Content	Theory	Practical Skills	Assignment only/ Workbook only
Completed During....	Freetime	Classtime	Optional or never
Place of Completion	Resource Center/ Library	Department Office/ Classroom	None
Self-Directed	Self-Directed	Optional Access to Lecturer	Instructional/ Teacher Directed

APPENDIX E-5

SOCIAL SYSTEM SUPPORT CHECKLIST

APPENDIX E-6

THRID-YEAR STUDENT QUESTIONNAIRE

1. Financial Support
   A. National Government Contribution
      1. Material
      2. Training
      3. Monetary Reward for Personnel Using SIMs
   B. Dnor Ahency Contribution
      1. Material
      2. Training
      3. Personnel
   C. Other
2. Personnel Support
   A. Number and Time Commitment of Individuals Relegated to SIMs
      1. Training
      2. Development
      3. Evaluation/Editing
   B. Number and Time Commitment Relegated to Administration and Planning of SIMs
3. Material Support
   A. Supplies for SIMs Publication
   B. Access to Printing Equipment
   C. Availability of Resources/References on SIMs in Libraries, Departments, Etc.
4. Training Support
   A. Number and Length of Training Workshops
   B. Number and Length of Study Tours
   C. Number and Length of Sessions Per Semester for Development and Evaluation of SIMs
5. Personal Support- Stages of Concern Questionnaire

1. Do you know what SIMs are?_____ If so, please describe them?
2. As a student at NTTC, did you ever complete a SIMs as part of your course work assigned by a tutor in your first or third year?
   If yes, in what subjects?
   If yes, which years? _____1st _____ 3rd _____Both
3. As an intern at NTTC, did you ever use a SIM to teach your Primary or Secondary students? _____
4. As an intern, did you ever complete a SIMs as an assignment?
5. Have you ever written a SIMs? _____
6. After graduating from NTTC, do you think you will use SIMs in your teaching classroom?
7. Are you PTC _____, APTC_____, STC_____?

APPENDIX E-7

FACTORS INTERVIEW

APPENDIX E-8

HISTORICAL INTERVIEW AND QUESTIONNAIRE

1. When and how did you become a teacher at NTTC?
2. What have been your experiences with SIMs here at NTTC?
3. What meaning do SIMs have for you?
4. What factors do you feel influence whether or not you use SIMs now?
5. Does anything from your teacher training program in the past influence your use of SIMs now? If so, what?
6. Does anything about your philosophy of education influence your use of SIMs now? If so, what?
7. Does anything about your own experience in Primary or Secondary school influence your use of SIMs now? If so, what?
8. Is there anything in your views of how students learn best which influences your use? If so, what?
9. Is there anything about your own ability to teach through or to write SIMs that influences your use? If so, what?
10. Is there anything about the way SIMs were first introduced to you at NTTC that influences your use? If so, what?
11. Is there anything about your work at NTTC? If so, what?
12. Is there anything else you might want to say about what influences whether or not you use SIMs? If so, what?

1. How did the decision to use SIMs occur?
   A. What reaction did you have to that decision?
   B. What was your role in that decision?
2. How was the decision made as to who would write SIMs?
   A. When did you find out about your role?
   B. How much say did you have in deciding your role?
3. Were there any plans for training either or both Basotho or expatriates? If so, for whom, by whom and how?

APPENDIX E-9

SOC QUICK SCORING DEVICE

(Permission granted for publication)

Margin for Scoring Page 1

A

DATE: _____

SITE: _____ SSN: _____

INNOVATION: _____

D

Five Item Raw Scale Score Total	Percentiles for Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
0	10	5	3	2	1	1	1
1	22	12	12	5	1	3	3
2	29	18	14	7	1	3	3
3	37	19	17	9	3	1	5
4	46	22	21	11	3	4	6
5	52	27	22	13	3	3	9
6	60	30	28	18	3	3	11
7	68	34	31	23	6	9	14
8	72	37	32	27	5	10	17
9	77	40	39	36	5	12	20
10	81	42	41	34	3	14	22
11	84	42	42	39	8	16	28
12	88	46	48	42	9	19	26
13	89	51	53	47	11	22	34
14	91	54	52	52	13	22	38
15	93	57	57	56	16	28	42
16	94	60	59	60	19	31	47
17	52	61	61	65	21	36	52
18	96	68	67	69	24	40	57
19	97	69	76	73	27	44	60
20	98	73	73	77	30	48	63
21	98	72	76	86	33	52	69
22	99	80	76	83	36	53	72
23	99	84	80	82	42	59	77
24	99	88	82	88	46	64	81
25	99	90	82	90	54	68	84
26	99	91	87	93	59	72	87
27	99	93	89	94	83	76	90
28	99	92	91	92	66	86	91
29	99	98	93	97	71	84	94
30	99	97	94	97	78	86	98
31	99	98	95	98	83	91	97
32	99	99	96	98	88	93	98
33	99	99	98	99	90	95	99
34	99	99	97	99	93	97	99
35	99	99	99	99	96	98	99

B

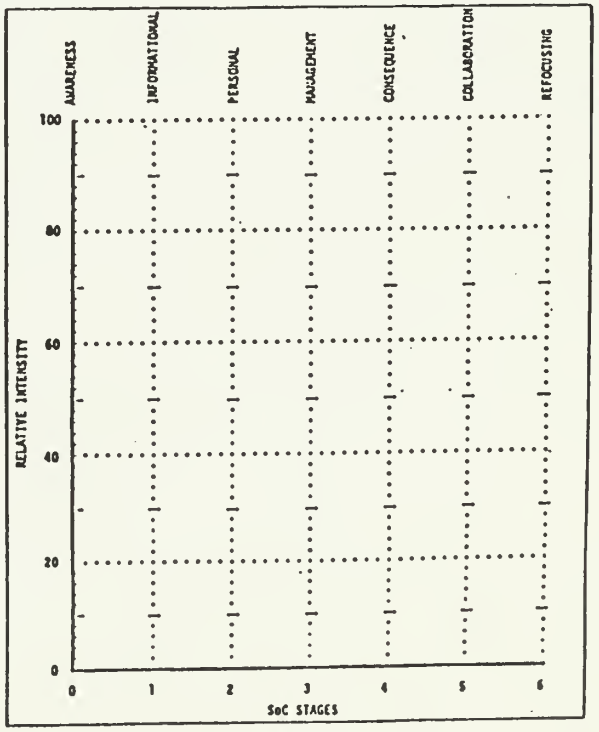
0	1	2	3	4	5	6
3	3	7	4	1	2	3
12	14	12	8	11	16	9
21	13	13	13	19	18	20
22	26	20	22	24	27	22
30	22	22	34	22	29	31

C

0	1	2	3	4	5	6

E

F



Margin for Scoring Page 2

APPENDIX E-10

LOU RATING SHEET

(Permission granted for publication)

LEVEL OF USE RATING SHEET (CBAM, 1975)

Tape #: Site: Interviewer:
Date: / / 75 I.D. #: Rater:

Level	Knowledge	Acquiring Information	Sharing	Assessing	Planning	Status Reporting	Performing	Overall LoU
Non-Use	0	0	0	0	0	0	0	0
D.P. A Orientation	I	I	I	I	I	I	I	I
D.P. B Preparation	II	II	II	II	II	II	II	II
D.P. C Mechanical Use	III	III	III	III	III	III	III	III
D.P. D-1 Routine	IVA	IVA	IVA	IVA	IVA	IVA	IVA	IVA
D.P. D-2 Refinement	IVB	IVB	IVB	IVB	IVB	IVB	IVB	IVB
D.P. E Integration	V	V	V	V	V	V	V	V
D.P. F Renewal	VI	VI	VI	VI	VI	VI	VI	VI
User is not doing:	ND	ND	ND	ND	ND	ND	ND	
No information in interview:	NI	NI	NI	NI	NI	NI	NI	

Is the individual a past user? Yes No

How much difficulty did you have in assigning this person to a specific LoU? None 1 2 3 4 5 6 7 Very much

Comments about interviewer --

General Comments --

APPENDIX E-11

LEVELS OF USE

SCALE POINT DEFINITIONS OF THE LEVELS OF USE OF THE INNOVATION **Levels of Use are distinct states that represent observably different types of behavior and patterns of innovation use as exhibited by individuals and groups. These levels characterize a user's development in acquiring new skills and varying use of the innovation. Each level encompasses a range of behaviors, but is limited by a set of Identifiable Decision Points. For descriptive purposes, each level is defined by seven categories.**	CATEGORIES **KNOWLEDGE** **That which the user knows about characteristics of the innovation, how to use it, and consequences of its use. This is cognitive knowledge related to using the innovation, not feelings or attitudes.**	**ACQUIRING INFORMATION** **Solicits information about the innovation in a variety of ways, including questioning resource persons, corresponding with resource agencies, reviewing printed materials, and making visits.**	**SHARING** **Discusses the innovation with others. Shares plans, ideas, resources, outcomes, and problems related to use of the innovation.**
LEVEL 0 NON-USE State in which the user has little or no knowledge of the innovation, no involvement with the innovation, and is doing nothing toward becoming involved.	Knows nothing about this or similar innovations or has only very limited general knowledge of efforts to develop innovations in the area.	Takes little or no action to solicit information beyond reviewing descriptive information about this or similar innovations when it happens to come to personal attention	Is not communicating with others about the innovation beyond possibly acknowledging that the innovation exists
DECISION POINT A	*Takes action to learn more detailed information about the innovation.*		
LEVEL I ORIENTATION State in which the user has acquired or is acquiring information about the innovation and/or has explored or is exploring its value orientation and its demands upon user and user system.	Knows general information about the innovation such as origin, characteristics, and implementation requirements	Seeks descriptive material about the innovation. Seeks opinions and knowledge of others through discussions, visits, or workshops.	Discusses the innovation in general terms and/or exchanges descriptive information, materials, or ideas about the innovation and possible implications of its use.
DECISION POINT B	*Makes a decision to use the innovation by establishing a time to begin.*		
LEVEL II PREPARATION State in which the user is preparing for first use of the innovation	Knows logistical requirements, necessary resources and timing for initial use of the innovation, and details of initial experiences for clients	Seeks information and resources specifically related to preparation for use of the innovation in own setting.	Discusses resources needed for initial use of the innovation. Joins others in pre-use training, and in planning for resources, logistics, schedules, etc., in preparation for first use.
DECISION POINT C	*Begins first use of the innovation.*		
LEVEL III MECHANICAL USE State in which the user focuses most effort on the short-term, day-to-day use of the innovation with little time for reflection. Changes in use are made more to meet user needs than client needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use the innovation, often resulting in disjointed and superficial use	Knows on a day-to-day basis the requirements for using the innovation. Is more knowledgeable on short-term activities and effects than long-range activities and effects of use of the innovation	Solicits management information about such things as logistics, scheduling techniques, and ideas for reducing amount of time and work required of user.	Discusses management and logistical issues related to use of the innovation. Resources and materials are shared for purposes of reducing management, flow and logistical problems related to use of the innovation.
DECISION POINT D-1	*A routine pattern of use is established.*		
LEVEL IV A ROUTINE Use of the innovation is stabilized. Few if any changes are being made in ongoing use. Little preparation or thought is being given to improving innovation use or its consequences.	Knows both short- and long-term requirements for use and how to use the innovation with minimum effort or stress	Makes no special efforts to seek information as a part of ongoing use of the innovation.	Describes current use of the innovation with little or no reference to ways of changing use.
DECISION POINT D-2	*Changes use of the innovation based on formal or informal evaluation in order to increase client outcomes.*		
LEVEL IV B REFINEMENT State in which the user varies the use of the innovation to increase the impact on clients within immediate sphere of influence. Variations are based on knowledge of both short- and long-term consequences for clients	Knows cognitive and affective effects of the innovation on clients and ways for increasing impact on clients	Solicits information and materials that focus specifically on changing use of the innovation to affect client outcomes	Discusses own methods of modifying use of the innovation to change client outcomes
DECISION POINT E	*Initiates changes in use of innovation based on input of and in coordination with what colleagues are doing.*		
LEVEL V INTEGRATION State in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on clients within their common sphere of influence	Knows how to coordinate own use of the innovation with colleagues to provide a collective impact on clients	Solicits information and opinions for the purpose of collaborating with others in use of the innovation	Discusses efforts to increase client impact through collaboration with others on personal use of the innovation.
DECISION POINT F	*Begins exploring alternatives to or major modifications of the innovation presently in use.*		
LEVEL VI RENEWAL State in which the user re-evaluates the quality of use of the innovation, seeks major modifications of or alternatives to present innovation to achieve increased impact on clients, examines new developments in the field, and explores new goals for self and the system	Knows of alternatives that could be used to change or replace the present innovation that would improve the quality of outcomes of its use	Seeks information and materials about other innovations as alternatives to the present innovation or for making major adaptations in the innovation	Focuses discussions on identification of major alternatives or replacements for the current innovation.

Procedures for Adopting Educational Innovations Project, Research and Development Center for Teacher Education, University of Texas at Austin, 1975, N.I.E. Contract No. NIE C-74-0087

CATEGORIES

ASSESSING	PLANNING	STATUS REPORTING	PERFORMING
Examines the potential or actual use of the innovation or some aspect of it. This can be a mental assessment or can involve actual collection and analysis of data.	Designs and outlines short- and/or long-range steps to be taken during process of innovation adoption, i.e., aligns resources, schedules activities, meets with others to organize and/or coordinate use of the innovation.	Describes personal stand at the present time in relation to use of the innovation.	Carries out the actions and activities entailed in operationalizing the innovation.
Takes no action to analyze the innovation, its characteristics, possible use or consequences of use	Schedules no time and specifies no steps for the study or use of the innovation	Reports little or no personal involvement with the innovation	Takes no discernible action toward learning about or using the innovation. The innovation and/or its accouterments are not present or in use
Analyzes and compares materials, content requirements for use, evaluation reports, potential outcomes, strengths and weaknesses for purpose of making a decision about use of the innovation	Plans to gather necessary information and resources as needed to make a decision for or against use of the innovation	Reports presently orienting self to what the innovation is and is not.	Explores the innovation and requirements for its use by talking to others about it, reviewing descriptive information and sample materials, attending orientation sessions, and observing others using it
Analyzes detailed requirements and available resources for initial use of the innovation	Identifies steps and procedures entailed in obtaining resources and organizing activities and events for initial use of the innovation	Reports preparing self for initial use of the innovation	Studies reference materials in depth, organizes resources and logistics, schedules and receives skill training in preparation for initial use
Examines own use of the innovation with respect to problems of logistics, management, time schedules, resources and general reactions of clients	Plans for organizing and managing resources activities and events related primarily to immediate ongoing use of the innovation. Planned-for changes address managerial or logistical issues with a short-term perspective	Reports that logistics, time management, resource organization, etc., are the focus of most personal efforts to use the innovation	Manages innovation with varying degrees of efficiency. Often lacks anticipation of immediate consequences. The flow of actions in the user and clients is often disjointed, uneven and uncertain. When changes are made, they are primarily in response to logistical and organizational problems
Limits evaluation activities to those administratively required, with little attention paid to findings for the purpose of changing use.	Plans intermediate and long-range actions with little projected variation in how the innovation will be used. Planning focuses on routine use of resources, personnel, etc.	Reports that personal use of the innovation is going along satisfactorily with few if any problems.	Uses the innovation smoothly with minimal management problems, over time, there is little variation in pattern of use.
Assesses use of the innovation for the purpose of changing current practices to improve client outcomes	Develops intermediate and long-range plans that anticipate possible and needed steps, resources, and events designed to enhance client outcomes	Reports varying use of the innovation in order to change client outcomes	Explores and experiments with alternative combinations of the innovation with existing practices to maximize client involvement and to optimize client outcomes.
Appraises collaborative use of the innovation in terms of client outcomes and strengths and weaknesses of the integrated effort.	Plans specific actions to coordinate own use of the innovation with others to achieve increased impact on clients	Reports spending time and energy collaborating with others about integrating own use of the innovation	Collaborates with others in use of the innovation as a means for expanding the innovation's impact on clients. Changes in use are made in coordination with others.
Analyzes advantages and disadvantages of major modifications or alternatives to the present innovation	Plans activities that involve pursuit of alternatives to enhance or replace the innovation	Reports considering major modifications of or alternatives to present use of the innovation	Explores other innovations that could be used in combination with or in place of the present innovation in an attempt to develop more effective means of achieving client outcomes.

APPENDIX F

LEVELS OF USE AND STAGES OF CONCERN SCORES

SOURCE	LEVELS OF USE	STAGES OF CONCERN
1	0	1
2	0	0
3	0	1
4	0	1
5	0	1
6	1	5
7	4B	6
8	6	6
9	6	6
10	4A	1
11	4A	0
12	6	1
13	0	0
14	4A	2
15	4A	0
16	0	0
17	0	6
18	0	1
19	4A	3
20	4A	5
21	6	5
22	4A	1
23	0	4

SOURCES	LEVELS OF USE	STAGES OF CONCERN
24	1	0
25	0	1
26	1	1
27	0	1
28	0	1
29	0	1
30	4A	6
31	4A	5
32	4A	0
33	0	2
34	0	0
35	2	1
36	4A	4
37	1	1
38	0	0
39	0	1
40	4B	6
41	0	0
42	1	6
43	2	1
44	0	0
45	4A	0
46	0	1
47	0	2

SCORES	LEVELS OF USE	STAGES OF CONCERN
48	0	1
49	4A	1
50	0	1
51	0	1
52	0	0
53	0	0
54	1	0
55	0	1
56	0	1
57	4A	6

****

A	5
B	5
C	5
D	5
E	6
F	1
G	NA
H	4
I	0
J	NA
K	0
L	5
M	NA
N	1

APPENDIX G

THE UNIVERSITY OF TEXAS AT AUSTIN
COLLEGE OF EDUCATION

June 17, 1983

Margaret Maxwell
Center for International Education
Hills House South
University of Massachusetts
Amherst, Mass. 01003

Dear Ms. Maxwell:

I was pleased to hear that you have completed your doctoral study and that you are now in the final stages of writing your dissertation. I hope that you are able to successfully complete this task and its defense in the very near future.

You have our permission to include in your dissertation the following pages:

Page 48 in Measuring Levels of Use of the Innovation: A Manual for Trainers, Interviewers and Rather (1975).

Pages 63-64 (un-numbered) in Appendix A of Measuring Stages of Concern About The Innovation: A Manual for Use of The SoC Questionnaire (1979).

Page 133 (un-numbered) in Appendix E of #2 above which includes the SoC Quick Scoring Device.

We would be interested in receiving at least an abstract of your dissertation for our records. In this way we will be able to keep track with what others have done and their studies, as well as to link people who may have common interests.

Best of luck in the defense of your dissertation and continuing your successful career.

Sincerely yours,

Gene Hall

Gene E. Hall
Program Director
Research on the Improvement
Process

/jm

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